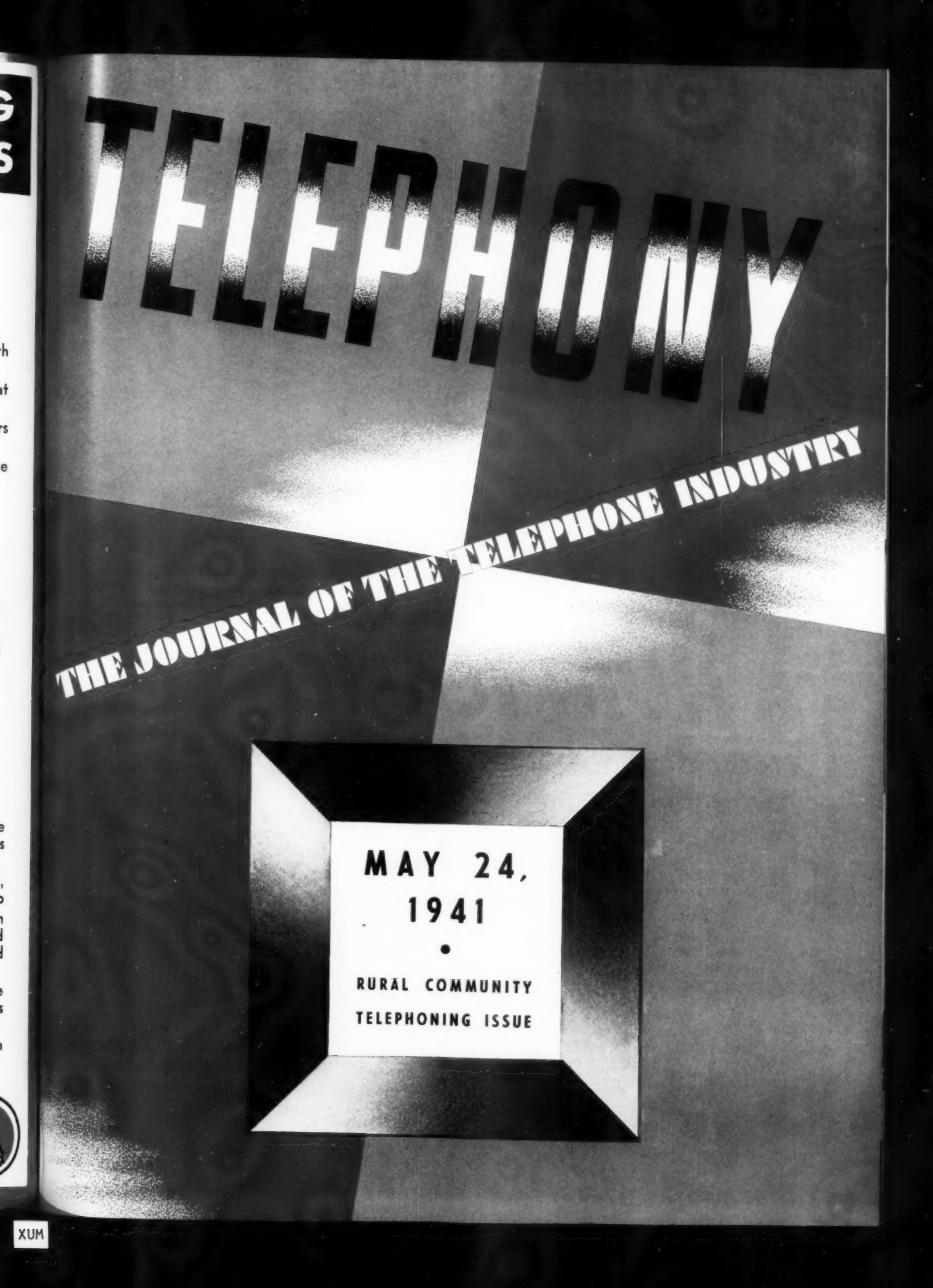

TELEPHONY
THE JOURNAL OF THE TELEPHONE INDUSTRY
MAY 24, 1941
RURAL COMMUNITY TELEPHONING ISSUE

Upholding a telephone tradition

A HURRICANE

tore off the roof . . . but not one switchboard signal went unanswered

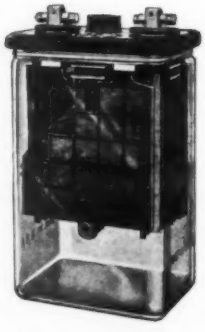
AS many of the town's inhabitants watched, awestruck, the howling wind of the hurricane snatched and splintered the roof from the building that housed the telephone exchange.

Did service halt, did subscribers seek to complete their frantic calls in vain? Not at all. As time after time in case of fire and flood, the operators played their heroic part in keeping the community's communications open.

In this way, and in countless others that challenge their courage, endurance and integrity, telephone men and women have built up dependability into the foremost of telephone traditions.

In doing so they daily place their trust, without question, in the sure, unfailing power of Exide Batteries. Since 1895, Exides in telephone service have been proving themselves worthy of that trust.

No matter what the service — common battery, emergency reserve, signaling, or P.B.X., in small or large exchanges—you will find in Exides the same high dependability for which telephone service, itself, is famous throughout the world.



Exide

TELEPHONE BATTERIES

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia

The World's Largest Manufacturers of Storage Batteries for Every Purpose

Exide Batteries of Canada, Limited, Toronto

TELEPHONY, May 24, 1941. Volume 120. No. 21. Published every week on Saturday by TELEPHONY PUBLISHING CORPORATION, 608 So. Dearborn St., Chicago, Ill. Telephone Wabash 8604. Subscription $3.00 per year. Entered as second class matter September 4, 1908, at the Post Office at Chicago, Ill., under the act of March 3, 1879.

XUM

STROMBERG-CARLSON CONVENIENCE SYSTEMS WILL MAKE MONEY FOR YOU

Inadequate Extension Service Replaced by Complete P.B.X. Service

In every territory there are many business concerns who find extension service inadequate for their requirements, but hesitate to order P.B.X. systems because of the expense of paying an operator. These companies are ready prospects for Stromberg-Carlson Convenience Systems which provide both central office and intercommunicating service without an attendant operator.

Operating companies from Coast to Coast are finding these systems a source of easy, added revenue. Write for Bulletins describing them.

HERE ARE ARGUMENTS USED BY PROMINENT SALES MANAGERS:

- ★ Instantaneous trunking from any station.
- ★ Intercommunicating without the aid of an operator.
- ★ Twenty-four hour service.
- ★ Ability to talk long distance from any station.
- ★ Freedom from trouble, because of simple, durable construction.
- ★ A telephone company's service immediately available in case of trouble.

THE STROMBERG-CARLSON No. 2-6 SYSTEM

Equipped with 2 central office trunks available to 6 inside stations, having common talking and selective DC ringing facilities.

THE STROMBERG-CARLSON No. 2-10 ST SYSTEM

Provides 2 central office trunks and 10 inside stations. It furnishes selective talking and selective ringing for both intercommunicating and trunk service. Secret service on all trunks.

THE STROMBERG-CARLSON No. 3-9 SYSTEM

Provides 3 central office trunks and 9 local stations. All trunk service is secret. Each station can be used for originating, answering, holding, or transferring central office calls and for intercommunication.

STROMBERG-CARLSON TELEPHONE MFG. COMPANY
Factory and Gen'l Offices: 100 Carlson Rd., Rochester, N. Y.
Branch Offices: Chicago, Kansas City, San Francisco, Toronto

Stromberg-Carlson

MAKERS OF VOICE TRANSMISSION AND VOICE RECEPTION APPARATUS FOR FORTY-FIVE YEARS

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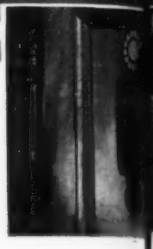
EVERYTHING

FOR THE PROFITABLE OP

TELEPHONE EX



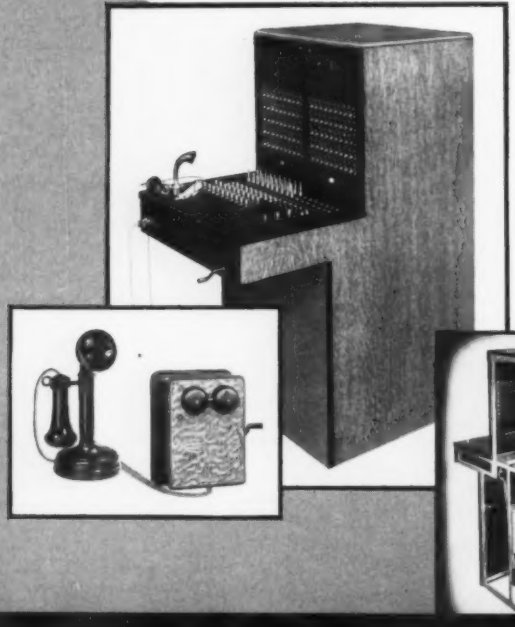
Your Kellogg representative is an authority on all types of telephone equipment. He is qualified through extensive training and years of experience to help you solve your exchange problems. He is backed by an Engineering and a Research Department which are "second to none" in the Independent telephone industry. These facilities, plus those of the great new Kellogg manufacturing plant, are constantly at your service.

Here you will find the most complete line of telephones upon which you can build a permanent and economical standardization program. The famous patented NON-POSITIONAL transmitter is furnished with all Kellogg Masterphones and operator's instruments . . . without extra charge.

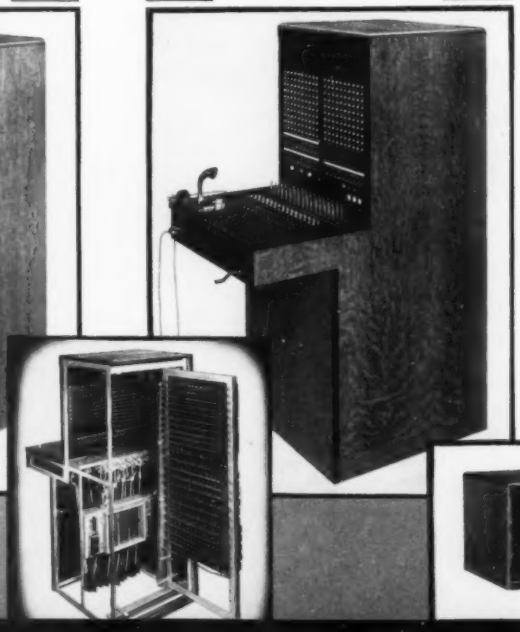
Central office switchboards are available in all sizes from 5 lines to thousands of lines capacity, and for all types of service whether magneto, common battery manual or dial. A new, highly versatile PBX is now available which brings you the first opportunity

KELLOGG

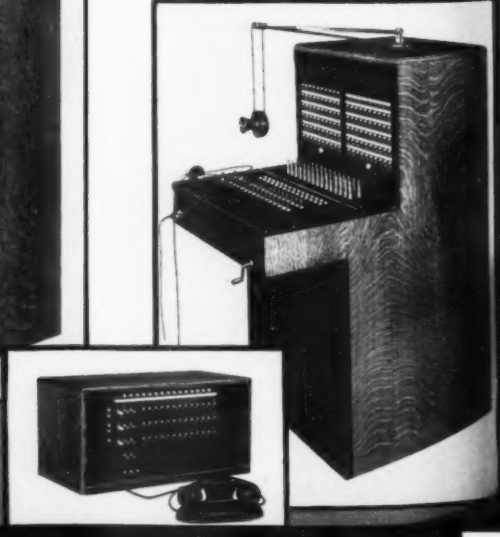
Masterbuilt Magneto



Masterbuilt Junior



Masterbuilt P. B. X.



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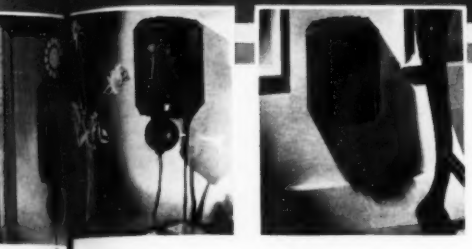
THE KELLOGG FACTORY AND GENERAL OFFICES.



to standardize on one board for all requirements. It furnishes all types of subscriber service and can be used in a common battery manual or dial exchange area, or both. The usual variety of custom-built PBX's can always be had for magneto, common battery manual or dial operation.

Everything for your line construction work . . . from nails and tools to poles and cable . . . is carried in fully stocked warehouses conveniently located and spotted from coast to coast. Here you get speedy shipments, careful intelligent handling of your orders, pre-selected quality products, reasonable prices and the satisfaction of purchasing line supplies which are backed by the famous Kellogg "Double Guarantee"!

Whatever your problems, whatever your requirements, your Kellogg representative and the whole Kellogg organization stand ready to take care of them . . . to your advantage.

MASTERBUILT C.B. SWITCHBOARDS
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MASTERBUILT JUNIOR SWITCHBOARDS
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MASTERBUILT MAGNETO SWITCHBOARDS
•
MASTERBUILT P.B.X. SWITCHBOARDS
•
TOLL SWITCHBOARDS
•
TELEPHONE REPEATERS
•
MASTERPHONES
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NON-POSITIONAL TRANSMITTERS
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WALL AND DESK TELEPHONES
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POWER EQUIPMENT
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PROTECTION
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LINE SUPPLIES

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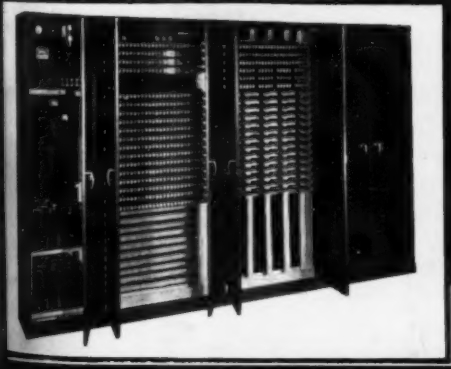

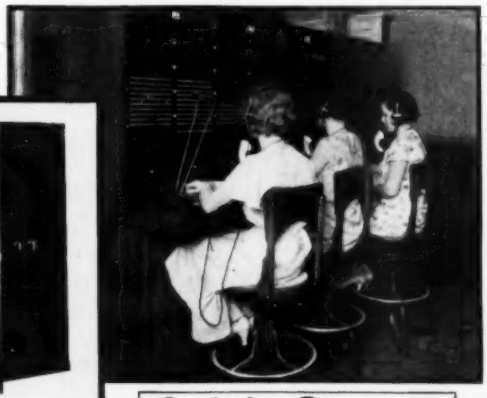

Masterbuilt 12-1600

KELLOGG *Leadership* SINCE 1897

KELLOGG SWITCHBOARD & SUPPLY CO.
CHICAGO, ILLINOIS

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Rhodes

TELEPHONE WIRING NAILS

Rhodes No. 18 Telephone Wiring Nails and Rhodes No. 15 Washer Telephone Wiring Nails are designed for paired and triple-braided telephone wires. They will withstand hard driving, withdrawing, bending and immersion tests. The No. 15 Washer type has fibre washer below head for extra insulation. Both types furnished in pin lengths of 1/2", 5/8", 7/8". Colors: Dark Green, Olive Green, Brown and Ivory. Try Them.

'Eveready,' 'Columbia' 'Gray Label,' Long Life

DRY CELLS

The last word in 40 years of constant development in the world's largest battery laboratory, this great cell combines long-life with the sustained voltage characteristics for which "Eveready" telephone cells have always been famous. Made by the makers of "Eveready" "Air Cell" Operators' Transmitter Batteries. Our warehouse stocks assure prompt delivery any time, anywhere. Longer life means lower costs.

Ideal's **"E-Z"**

DROP WIRE STRIPPERS

Now you can easily, almost instantly, strip the toughest insulation from both twisted pair and parallel drop wire. All you do is insert the wire in the E-Z Stripper, squeeze the handle, and release. Does the cleanest, quickest stripping job you've ever seen. Will not nick or cut conductors. One operation strips either parallel or twisted pair. Protects the operator's hands and requires very little pressure. Order one—try it.

Fansteel Balkite

TAPER RECTIFIERS

Provide automatic charge regulation for P.B.X., toll and small central office batteries at the lowest possible cost. Inherent taper charge properties of the Balkite Tantalum Rectifier eliminate costly special windings, relays and auxiliary controls. The charge automatically follows the load, rising with increased traffic and tapering off during light load periods. No overcharging, no undercharging. A reliable, economical unit. Ask for Bulletin TC-51 and prices.

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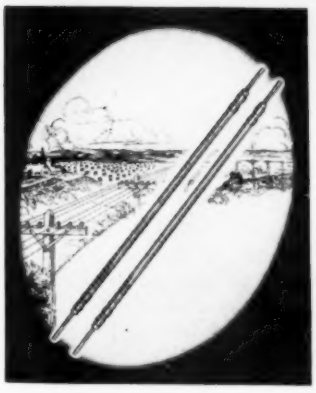
KELL
switchboard & supply

National's Nicopress

REPAIR SLEEVES



The quickest, easiest and best way to repair line wire breaks or old noisy line splices is with Nicopress Repair Sleeves. With these sleeves you can maintain the initial sag of the line and eliminate "cutting-in" new sections of wire. Splices made this way are strong, tight, neat—they ***equal*** or ***exceed*** the rated breaking strength of the wire. Be sure to Specify Nicopress Repair Sleeves the next time you order.

Indiana Crapo

STEEL STRAND WIRE

Crapo Galvanized Guy and Messenger Strand has the strength and ruggedness of steel which make for dependable, durable lines at ***low cost.*** The dense, tightly adherent galvanized zinc coating, applied by the patented ***Crapo*** Process, provides lasting protection. This wire is available in the new Crapo HTL-85 and HTL-135 High-Tensile, Low-Resistance Line Wires and in all other standard grades. Write for new comparison charts: span lengths, resistances, weights, etc.

Wagner Malleable

EXPANDING ANCHORS

Thousands of Wagner Anchors installed by utilities from coast to coast stand as mute testimony of dependability . . . made entirely of malleable iron . . . nut retainer locks anchor to rod and prevents rod from slipping through anchor during installation; also permits salvage of rod on abandonment of anchor. 20 years anchor manufacturing experience behind this Wagner product.

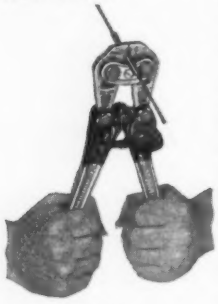
ARMOR-INSULATED *Hi-Conducto Bronze* **DROP WIRE**

20% longer life! . . . proved by millions and ***millions*** of feet in service. A special armored coat of Mica. A better method of tracer identification banishing forever the old wear-inducing raised tracer. Long life, moisture-proof insulation. The solid bronze conductor is unequalled: 85% conductivity, 32 ohms resistance, high tensile strength, flexibility and ductility. Order Kellogg Armor-insulated ***Hi-Conducto Bronze*** Drop Wire for finest "pole to phone" transmission.

YOU CAN *DUCK* TROUBLE—

WHEN YOU USE THE *Nicopress* METHOD OF SPLICING

You want your line joints strong and tight and want to be sure that they can be made in minimum time and with the least effort.



That's exactly what you get when you standardize on Nicopress sleeves and tools. Your splices will exceed the rated breaking strength of wire and you'll be pleased with the speed and ease with which they can be made with the compact, easy-to-operate Nicopress tool.

Order "Nicopress" from your jobber today and start simplifying your splicing jobs.

THE NATIONAL TELEPHONE SUPPLY CO.
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Canadian Mfr.—N. Slater Co., Ltd., Hamilton, Ont.
Export Distributor—International Standard Electric Corp., New York, N. Y.

MAKE IT A *Nicopress* SPLICE

Remove, Reverse or Replace this *point*

CHANCE PIKE POLES have these EXTRA features

- Reversible Safety Point
- Removable, Replaceable Point
- Spiral or Straight Point
- Reinforced Pole Head & Butt
- Lacquer Finished Pole

A·B·CHANCE CO·
CENTRALIA MISSOURI

Telephony

The Journal of the Telephone Industry

MAY 24, 1941

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PHILCO FLOTÉ *Explosion Proof* BATTERY

FOR TELEPHONE SERVICE

ANOTHER PHILCO ACHIEVEMENT

HF CAPACITIES 4000 to 7000 AMPERE HOURS

The Blow Torch Test!

This convincing test tells the story of the Philco "Explosion Proof" safety feature. Even though the explosive mixture of hydrogen and oxygen emitted from the battery is ignited, there is only a harmless report . . . with no damage to employee or adjacent equipment. Another achievement of Philco Engineers . . . bringing a new degree of safety to Telephone Service installations. And, look at these other Philco features:

FHR CAPACITIES 840 to 1680 AMPERE HOURS

EHR CAPACITIES 180 to 660 AMPERE HOURS

- ★ A COMPLETE FLOTÉ LINE—IDEAL FOR STANDARDIZATION.
- ★ REQUIRES CONSIDERABLY LESS SPACE THAN GLASS.
- ★ TIGHT ASSEMBLY IN HIGH TENSILE STRENGTH RUBBER JARS.
- ★ FLOTÉ PLATES—SPECIALLY DESIGNED FOR FULL FLOAT.
- ★ SPRAY-PROOF WITH BUILT-IN ELECTROLYTE LEVEL INDICATORS.
- ★ FLOTÉ PERMITS PERFECT INDIVIDUAL CELL PARALLELING.

Specify Philco Floté Telephone Batteries on new central office and PBX equipment and for replacement batteries.

PHILCO, Battery Division ★ Philadelphia, Pa.

XUM

Here
YOUR LI
Here's a
old and
subscribe
send in
Rebuilt"
fully finish
like those
If you do
converted
them in
Or if you
from our
purpose,
A
Z
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rs New Life for
R LD SUBSTATION EQUIPMENT!

ere's a ription which will bring new life to your
l and o e substation equipment—and stimulate
oscribe dwill and enthusiasm as well! Simply
nd in y d telephones for our famous "Autelco
built" ment. We'll send you in return beauti-
ly finish nd carefully reconstructed instruments
e those n below.

you do ish your old telephones to be rebuilt or
nverted s, you still can save money by trading
em in o rebuilt models which we have in stock.
if you er, you can buy rebuilt models direct
om our in practically every style and for every
rpose, rprisingly reasonable prices.

Remember, Autelco Rebuilt means a thorough job from framework to final finish, and is carried out under modern factory conditions by competent, expert telephone craftsmen. All defective parts are replaced, and so bright and gleaming are the finished instruments, that your subscribers will look upon them as brand new equipment!

Autelco Rebuilt service has proved to be exceedingly popular, since it offers a thoroughly dependable method of modernizing your substation equipment at very low cost. Circular 1640-B contains illustrations of standard models together with prices and complete descriptions. Send for a copy—free upon request.

Autelco Rebuilding Service is available also for rebuilding central office switchboards, P.B.X.'s, P-A-B-X's, test panels, power panels, etc. Write for information.

Catalog Identification, Descriptions and Prices for Rebuilt Telephones Shown at Left

Z—Common Battery Monophone Wall Set—Dial Blank—Price: $9.75 plus your telephone—($13.75 without trade-in)

A—Desk Stand—Magneto or Common Battery—Price: $3.25 plus your telephone—($4.65 without trade-in)

C—Magneto Wall Set—Price: $6.50 plus your telephone—(without trade-in: 3-bar gen....$10.60; 4-bar gen....$11.10; 5-bar gen....$11.25)

W—Magneto Monophone Wall Set—Price: $11.75 plus your telephone—(without trade-in: 3-bar gen....$15.85; 4-bar gen....$16.35; 5-bar gen....$16.50)

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ORIGINATORS AND DEVELOPERS OF STROWGER STEP-BY-STEP MACHINE SWITCHING AUTOMATIC DIAL SYSTEMS

KERS OF TELEPHONE, SIGNALING AND COMMUNICATION APPARATUS
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We want the public to know

BACK of almost every telephone stands a company. The Bell System believes that the best service grows out of an understanding between the company which supplies that service and the people who use it. The advertisement on the opposite page is a current demonstration of that policy. It appears in general magazines during May. It should lead to a better understanding of the whole telephone industry.

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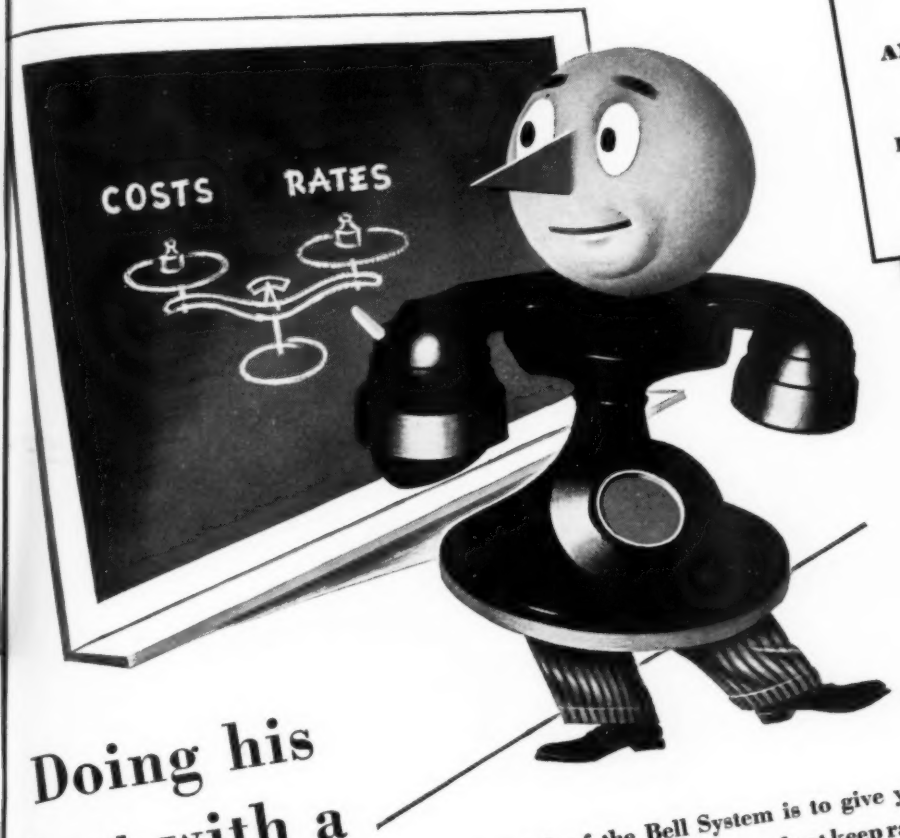

AN ADVERTISEMENT
OF THE
BELL TELEPHONE
SYSTEM

Doing his best with a tough job

The hardest job of the Bell System is to give you more and better telephone service and yet keep rates low. It isn't easy to keep those two things in balance. Increasing costs and taxes make it difficult.

But there is no end to trying. There is never any letting up in the search for a better, more economical way. All along the line, the Bell System believes in economy in business housekeeping. That is part of its obligation to the public.

BELL TELEPHONE SYSTEM

"The Telephone Hour" is broadcast every Monday. (N. B. C. Red Network, 8 P.M., Eastern Daylight Saving Time.)

LEICH SERVICE

BETTER SERVICE AT VERY LOW COST

for the small exchange

The Leich Junior Switchboard illustrated is ideally suited to the needs of small telephone companies contemplating their first step from magneto service. It furnishes excellent common battery service for those subscribers who want it—at the same time, it provides magneto service, on a lamp-ended basis, to rural and other subscribers. Magneto lines may be converted—easily and inexpensively—to common battery operation at any future time.

This switchboard is completely self-contained; it is simple to operate; it is easy to maintain; and, above all, it has a very low cost. It is an extremely popular unit and small telephone companies planning to convert to common battery operation are urged to make early commitments to insure satisfactory delivery.

LEICH SALES CORPORATION

427 WEST RANDOLPH STREET • CHICAGO, ILLINOIS

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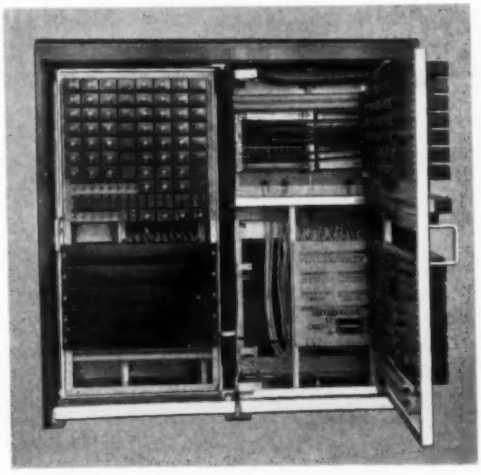
No Separate Relay Rack —

All relays in the Leich Junior—both cord circuit and line—are mounted on hinged gates which swing open to provide easy access to all connections. Only the storage batteries, ringing and charging equipment are required as accessories. Normally, existing protective equipment may be utilized for this board.



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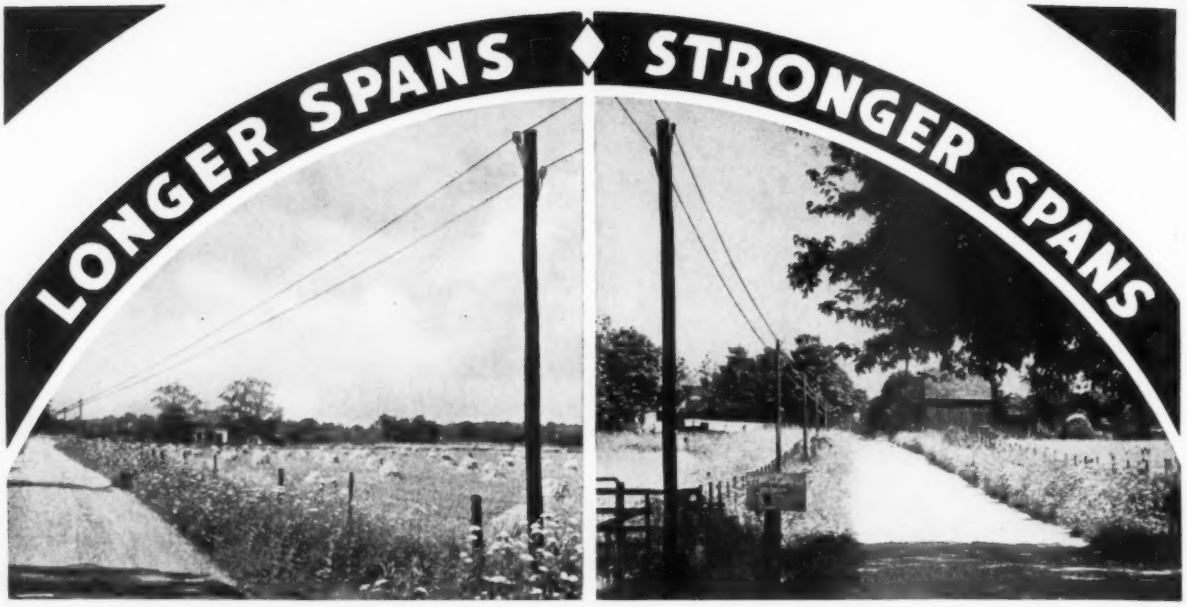


Cut Construction Costs ★★★★ ★★★ Cut Maintenance Expense

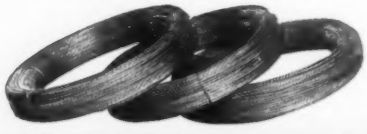
Crapo
HIGH-TENSILE
LOW-RESISTANCE
LINE WIRE

For Long Spans

For Extra Long Spans

Produced by the Manufacturers of

Crapo Galvanized Steel Strand, Telephone and Telegraph Wire, Construction Wire, Tie Wire, Ground Wire



YOU can extend rural telephone circuits more economically, more profitably .... improve service .... reduce maintenance .... by building overhead lines of *Crapo* High-Tensile, Low-Resistance Line Wires.

Marked savings in construction and maintenance costs are a matter of record wherever *Crapo* HTL-85 and *Crapo* HTL-135 are employed. Long spans---made possible by these high-strength wires---reduce initial costs to a new low level. Ability to withstand heavy ice and wind loading minimizes the possibility of service interruptions, cuts down maintenance expense.

The superior speech transmission qualities of both *Crapo* HTL-85 and *Crapo* HTL-135 have been proved by extensive tests, backed by actual operating experience. Transmission losses expressed in decibels per mile of circuit are less than with standard B.B. wire.

THERE are definite places for *Crapo* HTL-85 and *Crapo* HTL-135 High-Tensile Line Wires in your new construction and re-building programs.

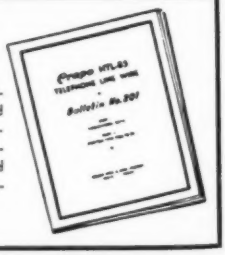
Crapo HTL-85, with more than 60% greater tensile strength than standard B.B. wire, permits spans of 225 feet in areas subjected to heavy ice and wind loading, 325 feet in medium loading and 375 feet in light loading districts. It provides stronger, safer spans on existing lines.

Crapo HTL-135 possesses two and one-half times the strength of B.B. wire; makes possible extra long spans of 350 feet in heavy loading, 450 feet in medium loading and 500 feet in light loading districts.

Whether you plan to build new lines or replace old ones, it will pay you to investigate the outstanding advantages of *Crapo* HTL-85 and *Crapo* HTL-135 now.

Write

for Technical Bulletins No. 201 and No. 202 containing pertinent engineering data and construction practice information!



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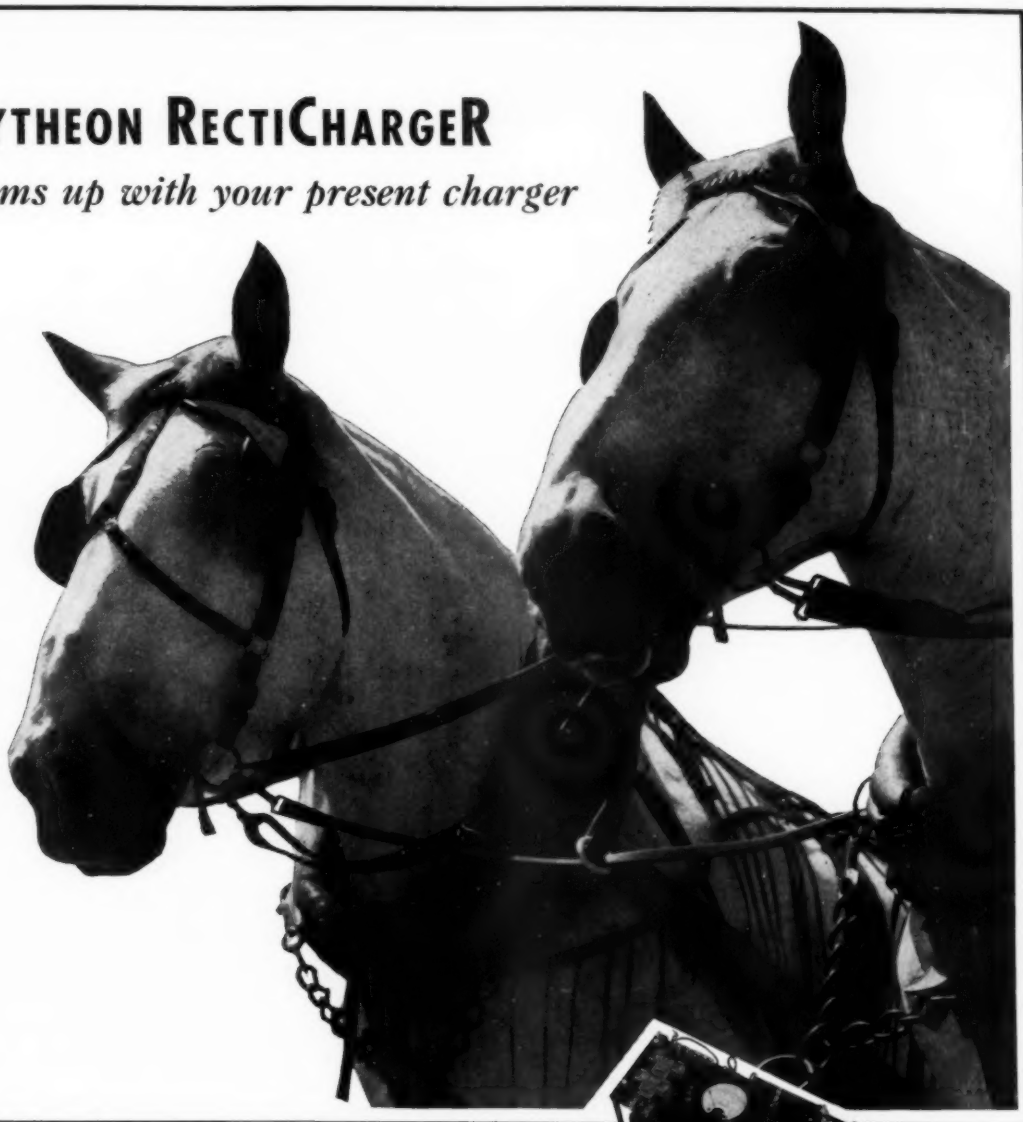
RAYTHEON RECTICHARGER

Teams up with your present charger



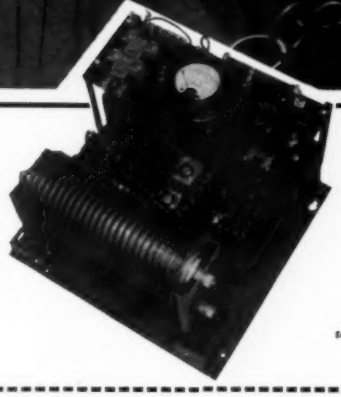
TRAFFIC is increasing and probably you will need more power plant capacity. The thrifty way to get it is to add a Raytheon RectiChargeR to your present full wave constant current charger (regardless of make). This doubles capacity and changes your charger to the preferred constant potential or follow-the-load type.

Typical example—

Present Charger 6 Amps. Constant Current DC
+Raytheon RectiChargeR 6 Amps. Constant Potential DC
=New Power Plant 12 Amps. Constant Potential DC

Everyone wants constant potential charging. It usually increases battery life. The difficulties of under and over voltage are eliminated, such as short lamp life, frying transmitters and sticking relays.

Write now for your copy of our literature.



View of RectiChargeR with cover removed

RAYTHEON MANUFACTURING COMPANY
190 WILLOW STREET, WALTHAM, MASS.

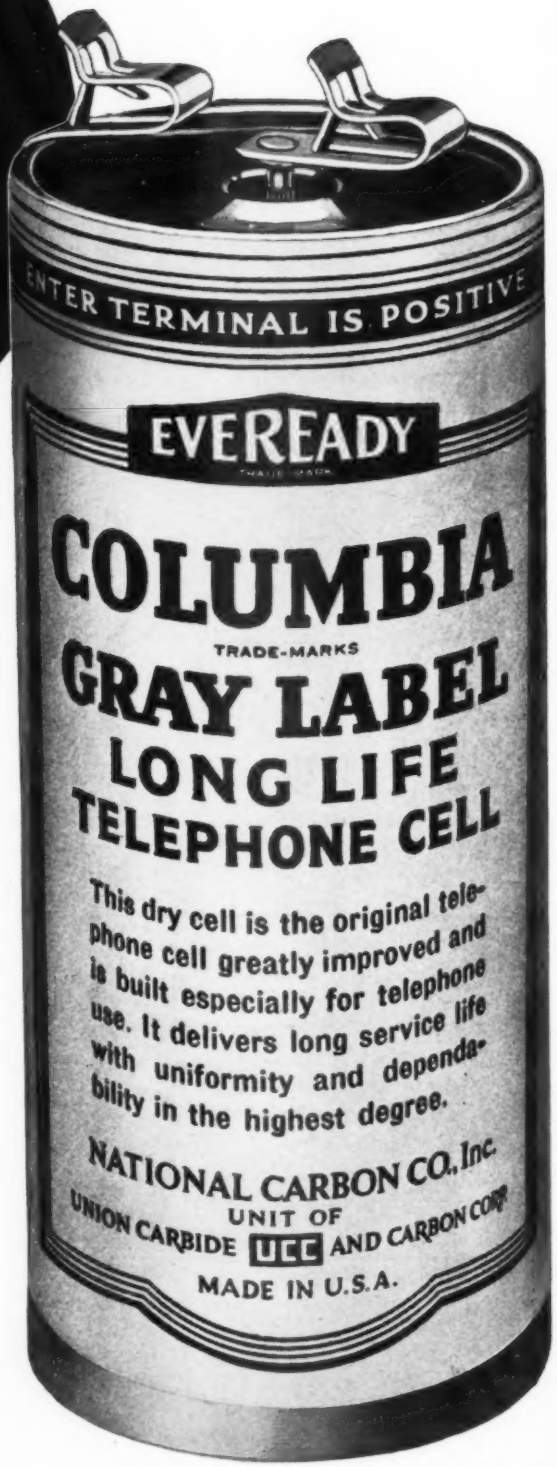
My present charger is rated ..... Volts ..... Amps. Tell me how to add a Raytheon RectiChargeR and get constant potential charging.

Name .....

Address .....

TF

HERE'S MORE POWER FOR YOUR MONEY!


ENTER TERMINAL IS POSITIVE
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TELEPHONE CELL
This dry cell is the original telephone cell greatly improved and is built especially for telephone use. It delivers long service life with uniformity and dependability in the highest degree.
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OPERATING RECORDS prove the economy of using "Eveready" "Columbia" "Gray Label" Long Life telephone cells. Their *higher sustained voltage* results in longer service life.

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Made to a single standard of high quality by battery specialists . . . constantly checked in the world's largest dry battery laboratory, these telephone cells will save you money. Try them and you'll *know* why more independent telephone companies use "Eveready" "Columbia" "Gray Label" Long Life telephone cells than any other brand!

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Long Spans IN RURAL LINES

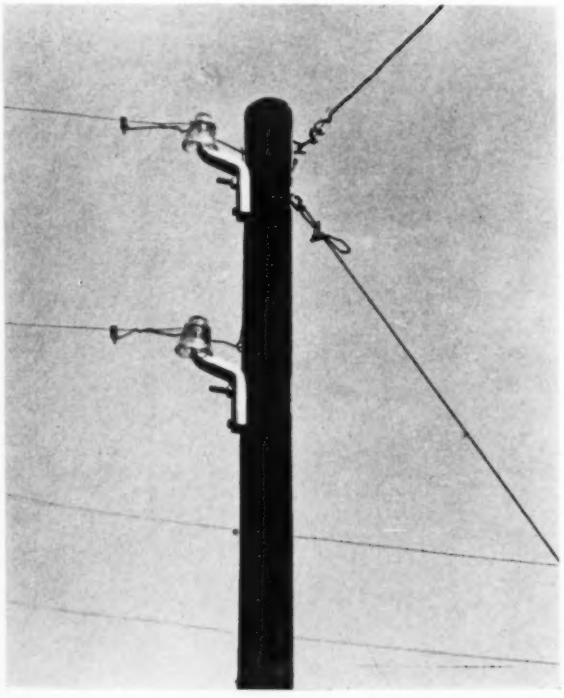
By RAY BLAIN
Technical Editor

WE HAVE heard many arguments for and against long span construction of rural lines during the past few years. There are now definitely two schools of thought on this subject. One contends that, in the use of high tensile strength wire, standard span lengths should be used; the other believes that span lengths of 350 to 450 feet may be used satisfactorily when certain construction practices are observed.

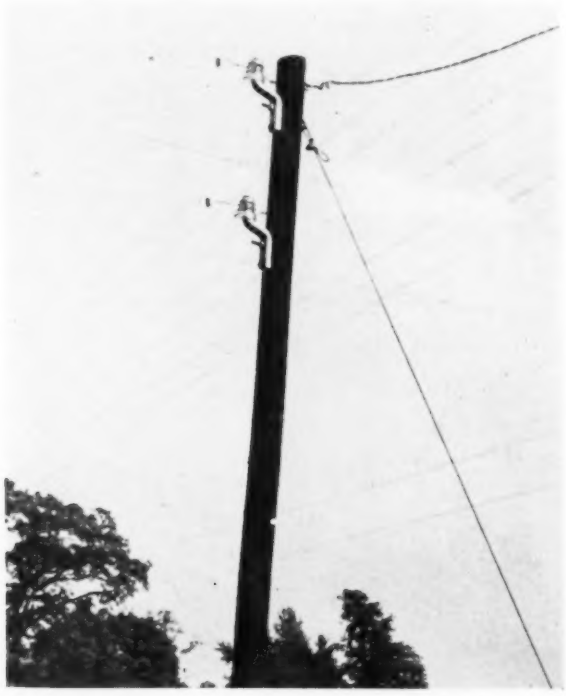
We have never talked with anyone having used long span construction who has not reported complete satisfaction. However, in this article we shall not favor or condemn this method of construction, but shall endeavor to merely present the facts to the best of our ability and then let the reader decide for himself which best meets the rural line requirements in his exchange.

One of the long standing rural line problems is the high cost of plant required to serve a few scattered subscribers. Many attempts have been made to improve rural line plant in order to provide better service and to reduce its costs.

Pole lines for this service ordinarily carry only a few circuits and the pole cost is out of proportion to the total cost of the line. On straight sections of line over the average terrain, the use of high tensile strength wire saves, it is claimed, from 10 to 15 poles per mile. The load on rural line poles is generally relatively small and their size is generally about the same whether short or long spans are used.



Close-up view of steel brackets used for dead-ending. Note that eye bolt and through bolt are confined on the top bracket.



Dead-end pole on a long span line. Heavy steel brackets and insulators are used in assembly.

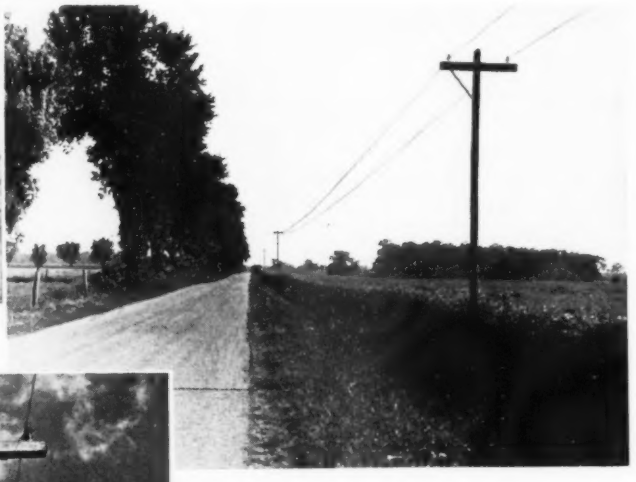
It is believed that a pole saved by the use of long span construction represents a net gain. Also, the cost of pole maintenance may be reduced considerably by the use of fewer poles per mile. Some claim that higher poles must be used for long span construction due to the necessary increase in sag, but this need not always be the case.

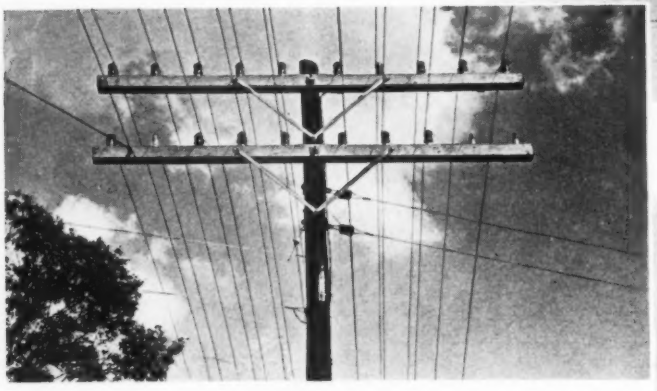
When the rural line is located near a fence as is usually the case, even though the wire in the center of the span is only a few feet above the post tops, this clearance is generally considered satisfactory. Present-day treated poles insure average life and reliability in the long span line. Twenty-foot poles ordinarily prove adequate although 25 or 30-foot poles are required at all road crossings.

Proper guying is most important on any type of

LEFT: Long span construction using the high tensile strength wire on ten-pin crossarm.

BELOW: This line has 330-foot spans using 25-foot poles on two-pin crossarms. Note one brace on each crossarm.





ABOVE: Branch bracket circuit to left is BB wire while the one on right dead-ended on strain insulators is high tensile strength wire.

Corner pole is well guyed. Note double crossarms and braces.

One form of transposition on a long span rural telephone line.

This rural line of high tensile wire construction has utilized 350-foot spans.

XUM

aerial line, but is especially necessary for use on long span construction if the line is to give service. Guying material and patent anchors are now available which make this job comparatively easy. Corner poles should all be raked and well guyed to hold the extra strain placed on them by the long spans. Do not attempt to reduce construction costs by eliminating minor guys as this will prove more costly in the long run.

In this article, we shall not attempt to give complete specifications on this new high tensile strength wire, but will briefly describe only its principal characteristics. The No. 12 BWG generally recommended for rural line use has a nominal diameter of 0.109 inch. Two different grades, one with a minimum breaking strength of 793 pounds and the other with a minimum breaking strength of 1,213 pounds, are available. Resistance of the former is 34.12 ohms per mile and that of the latter, 38.23 ohms per mile.

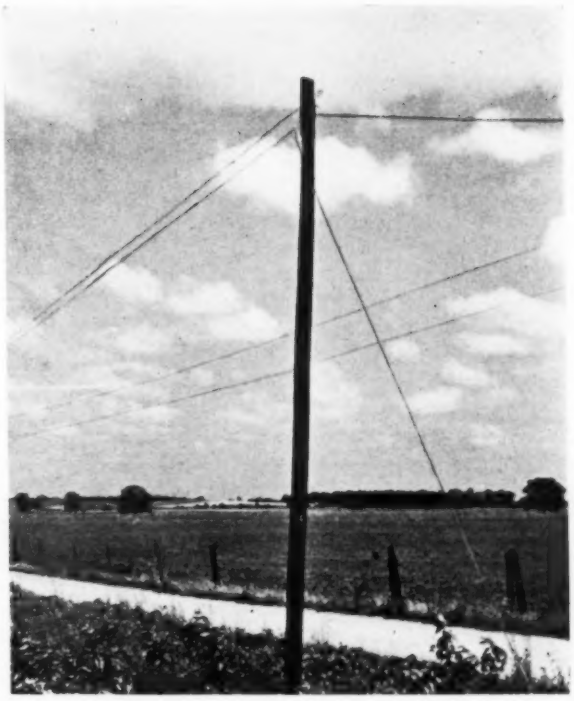
Numerous transmission tests made on high tensile strength steel wire of 1213 lbs. breaking strength type indicate that it has approximately 5 per cent lower transmission loss per mile than BB telephone wire. This improvement in transmission, plus the fact that it has more than two and one-half times the strength of ordinary BB wire gives it both practical and economic advantages over all types of galvanized wire for telephone purposes.

While there are various opinions as to the maximum length of spans, the only method to determine this factor with safety is to consider the load of glaze and wind. A conservative assumption of simultaneous glaze and wind loading for rural lines as recommended by the manufacturers are indicated as follows:

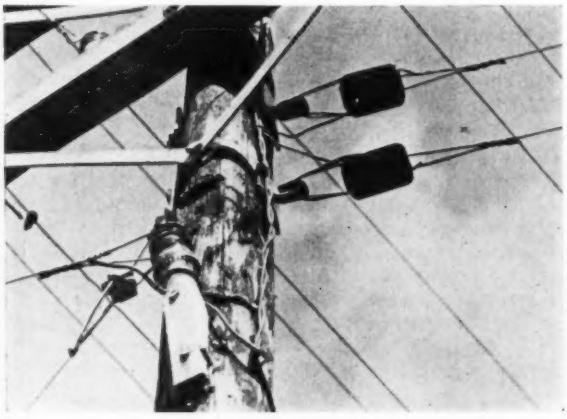
Loading District	Radical Thickness of Glaze	Wind Pressure Per Sq. Ft.	Simultaneous Temperature
Heavy	0.5 ins.	2.0 lb.	0° F.
Medium	0.25 ins.	2.5 lb.	15° F.
Light	None	3.0 lb.	30° F.

The recommended sags for medium and heavy loading districts are such that the unloaded tensions in the spans will be about one-fifth of the rated breaking strength of the wire at minus 10° F. for heavy loading and at zero degrees for medium loading for all span lengths.

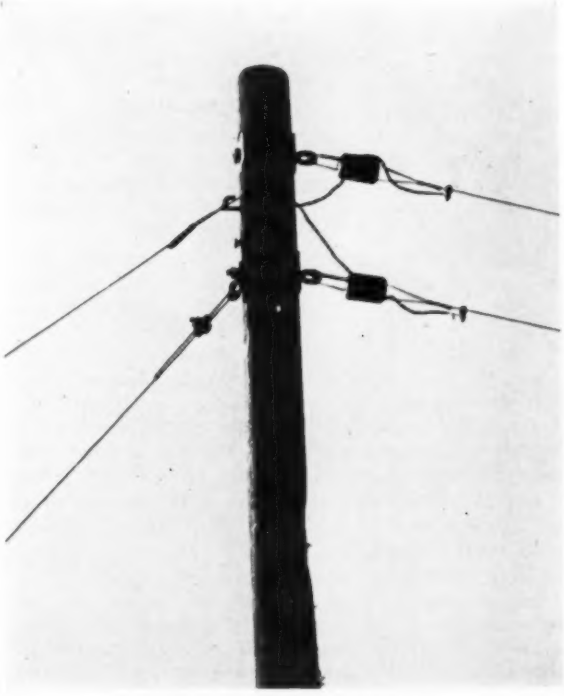
(Please turn to page 59)



Dead-end on a long span line. Note that ordinary wood brackets are used, but are reinforced with steel clip washers.



View of two different methods of dead-ending line.



Strain insulator type of dead-end.

DEVELOPING RURAL *Telephone Business*

By L. M. BAKER

District Manager,
Southwest Telephone Co., Purcell, Okla.

THERE ARE many influences today, such as soil conservation, regulation of production, improved marketing, modern machinery, rural electrification, etc., working toward improved standards of living for the farmer. These influences are rapidly changing his ideas of values, and he is no longer content with just any product or service because it is "cheap."

Therefore, I take the stand that the telephone industry must recognize this transition and revise its methods of development to meet this changed condition.

It is apparent, from surveys and station statistical information of various telephone companies, that the telephone is losing its popularity on the farms. There was a time, not so long ago, when a majority of the farms in Oklahoma had some type of rural telephone service, either service-owned and maintained by the telephone companies, or service-owned and maintained by groups of farmers.

In each case, these lines were usually built of substandard materials, and provided grounded magneto service. However, they met all of the essential service requirements of the day. But remember, those were the so-called "horse and buggy" days, when little demand was made for speed and dependability.

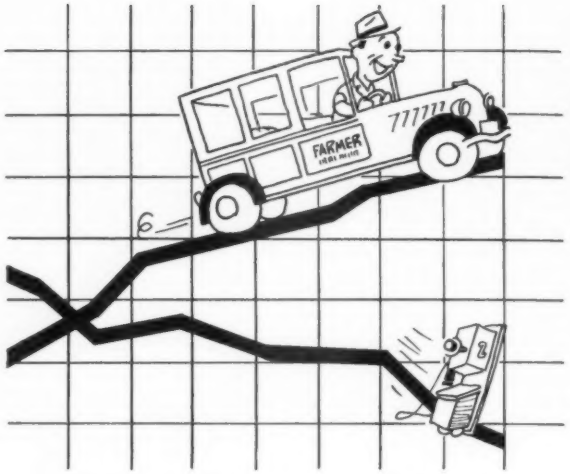
In the last decade, however, rural service has suffered grave losses. This trend away from rural service began with the depression, but instead of gaining back farm stations as we have in urban communities, we have continued to lose rural subscribers.

From 1930 to 1935—depression years—our company lost 30 per cent of its rural subscribers. From 1935 to 1939 we had lost 52 per cent of our rural subscribers, indicating that the loss of rural business did not cease with general improved business conditions.

I do not believe that the continued loss of rural telephone business is due to economic conditions. As stated in the beginning, the Oklahoma farmer is today providing himself with many services, conveniences, and even luxuries that he did not have 10 years ago.

Also, I would call your attention to the popularity and rapid growth of rural electrification in the same rural areas that we have served in the past, but where we have been unable to regain our lost telephones.

In my opinion there are two definite reasons for this situation. First, the industry itself is at fault. It has failed in its obligation to its rural subscribers to engineer, develop, and maintain service to them on a par with that furnished urban and long distance customers.



In the last decade rural service has suffered grave losses.

Second, the telephone industry, presumed to be the tightest monopoly in existence, and most free from competition, has in recent years found itself facing extremely keen competition—competition from other modern services and conveniences.

The failure of telephone companies to engineer, develop, and maintain rural telephone service in step with the progressive development of modern urban service was due in part to methods used in the early days in developing the rural service. In those days, rural development was encouraged by both the regulatory bodies and the telephone companies, upon the unsound and impractical basis of farmer ownership and maintenance.

This process of development kept rates for service at such a low level that it was uneconomical for the telephone companies to make the investment necessary to provide proper construction and facilities. Or, in those instances where the telephone companies did provide proper plant, the low rates were not sufficient to set up an adequate depreciation reserve that would permit them to keep those rural plants in the proper state of repairs and replacements, and meet the ever changing requirements to modernize the service.

The time has come when all telephone companies

(Please turn to page 42)

XUM

How to Build and Repair

A FARM TELEPHONE LINE

ALMOST EVERYBODY who lives on a farm wants his telephone service to be good, and his telephone working properly when he needs it. If telephone service is good, he gets more value out of it. And in emergencies . . . when something goes wrong . . . being able to use the telephone without trouble may mean saving money, or worry . . . or even a life.

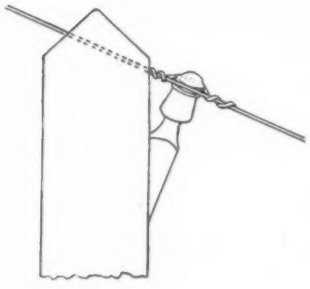
But telephone service on many farm lines is far from good. Of course, to get good telephone service, the line should be well built in the first place, and then kept in good shape. This eight-page article describes what was done to fix up a farm telephone line that was in bad shape . . . There was crosstalk and hum . . . and sometimes it would not work at all . . . and it had to be repaired as economically as possible.

The farmers go over the telephone line with the repairman while he shows them the troubles that kept the line from "talking up" and explains how to fix them—so they'll stay fixed. He points out that "you can staple fence wire right on the post, but you have to *insulate* telephone wire. It must be spliced both for strength and so it will be right electrically." It boils down to a few simple things like making tight splices, keeping wires from getting crossed, and keeping the telephone-current from leaking into the ground.

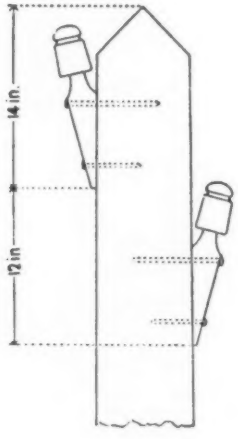
EDITOR'S NOTE: The following eight pages contain helpful suggestions on the construction of rural telephone lines which, it is believed, will be of value to operators of small magneto exchanges as well as to "switched line" subscribers. This material is being made available by TELEPHONY in reprint form, at a reasonable cost, so that individual copies may be obtained by telephone companies for distribution among service line subscribers. Please place orders immediately so that a sufficient supply may be printed. Gratitude is expressed to the Southern Bell Telephone & Telegraph Co. for the use of this material and for its excellent cooperation.

XUM

HERE'S A CASE WHERE THE BRACKET IS OFF. Every time the line swings it is apt to get crossed with the other line on this pole. Then crosstalk results. The best way to fix it is to put in a new pole. This pole has rotted; that's why the bracket pulled off. Putting in a new pole will save time and trouble.



HOW TO ATTACH WIRE TO AN INSULATOR: Tie wire should be of same size as line wire and may be cut from this wire. Take up all slack in tie wire so back side of line wire will be held tight against insulator.



HOW TO ATTACH BRACKETS: Set second bracket 12 inches lower on opposite side of pole from top bracket. This helps prevent crossed wires.

THREE THINGS ARE IMPORTANT WHEN SELECTING POLES: (1) Good, tough timber that doesn't rot quickly. (2) Large enough poles, at least 14 feet tall and four inches through at the top (poles that will last.) They should be tall enough and strong enough to keep the wires from sagging lower than eight feet above the ground. If the pole is a little small, wrap the bracket to the pole with wire, in addition to nailing it. (3) Treat the base so the pole won't rot quickly.

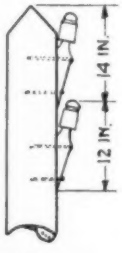
XUM

THE PULL of these wires against this corner pole has been too much for it, and the pole is about to topple over. On curves or turns the pole at the turn should be guyed or braced. On *sharp turns,* two brackets for each wire should be used on the corner pole, and they should be attached on the *outside* of the curve.

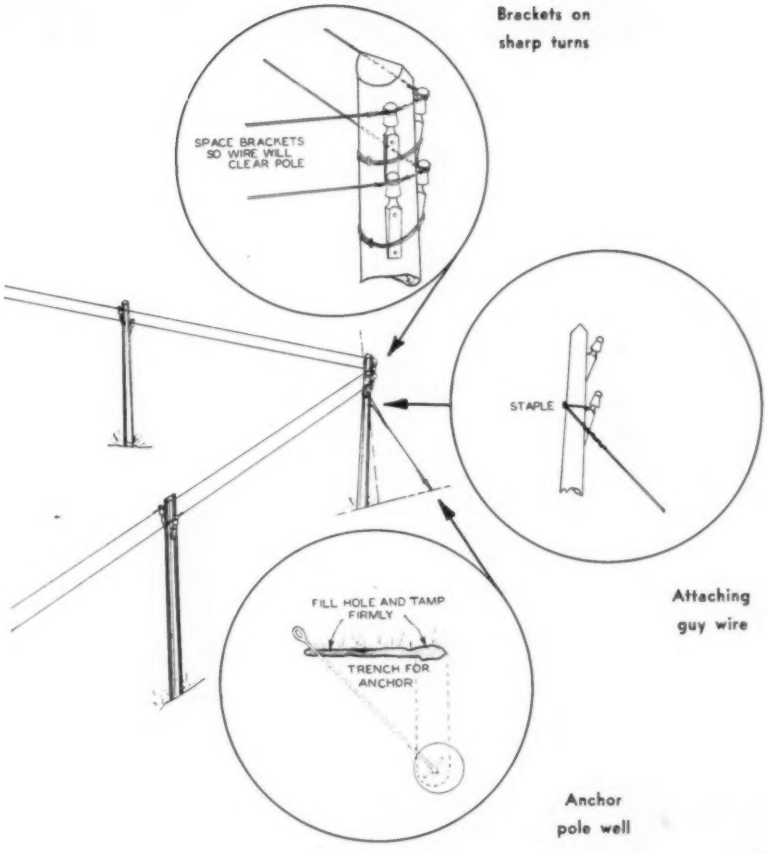
HOW TO SET A POLE

POLES should be set with about one-fifth of their length in the ground. In setting a corner pole, the butt should be a little out of line; that is, it should be "set in" towards the *inside* of the curve not less than one foot, to brace the pole against the pull of the line.

The spans next to corner pole are shorter than other spans.



Brackets on curves



Brackets on sharp turns

Attaching guy wire

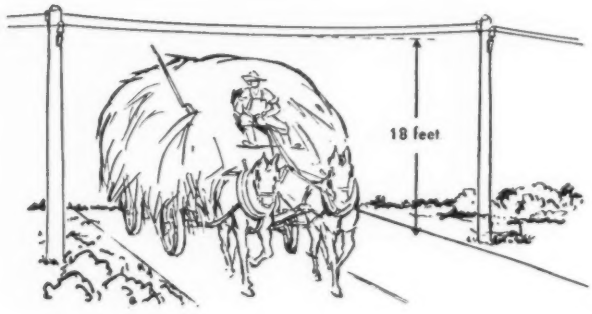
Anchor pole well

XUM

HOW TO

STRING WIRE

When there are two or more wires on a pole line, the sag should be the same in each. Then when the wires swing in the wind, they'll swing the same way, without touching or causing crosstalk.

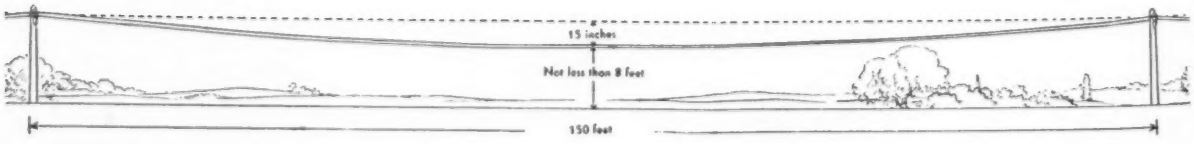


Where the line crosses a roadway, the clearance should never be less than 18 feet, high enough to clear a man on a load of hay.

Strong poles carrying 12-gauge galvanized iron wire can be put 150 to 175 feet apart. On a 150-foot span, allow a sag in the wire of 15 inches at the lowest point in the span. If the line doesn't have enough sag, it may snap when the weather turns cold. But the lowest point of the line should always be at least eight feet above the ground.

CAUTION: There are state laws on roadway clearance. Be sure the clearance of your lines meets the laws in your state.

When you are ready to rebuild your line, ask your local dealer about the new No. 12-gauge galvanized *steel* wire. The main advantage of this steel wire is that it lets you make the spans longer, provided you use taller poles. That means you need fewer poles, insulators, brackets, and so on.



XUM

HOW TO MAKE A SPLICE

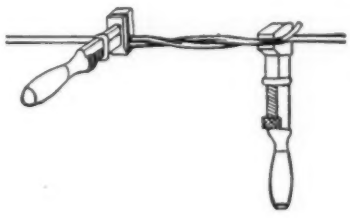
A "haywire" splice (shown in photograph at top) is usually the reason why a farmer can't hear well over his line. While such a splice may appear to be *holding* all right, the *electrical* connection is bad. And each bad connection adds many miles to a line . . . as far as hearing is concerned.

What can be done about it? The best way to fix up a bad joint is to *cut it out* and put in a "sleeve" splice or a *carefully made* hand splice (see photograph on page 23).

Suppose that does not leave enough slack in the span? In that case, splice in a short extra piece of wire with good sleeve joints at each end. That fixes up the bad joint, and gives the slack needed, too.

The best way to splice a wire is with a little double-barreled gadget called a sleeve. Here is what one looks like . . . before it is twisted. . . . . .

First, scrape lightly or sandpaper both ends of wire for five or six inches back, until it is bright. Then slip the ends of the wire through the sleeve. . . . . .



Next, get hold of the sleeve with two monkey wrenches (or regular telephone tools if you have them). . . . .

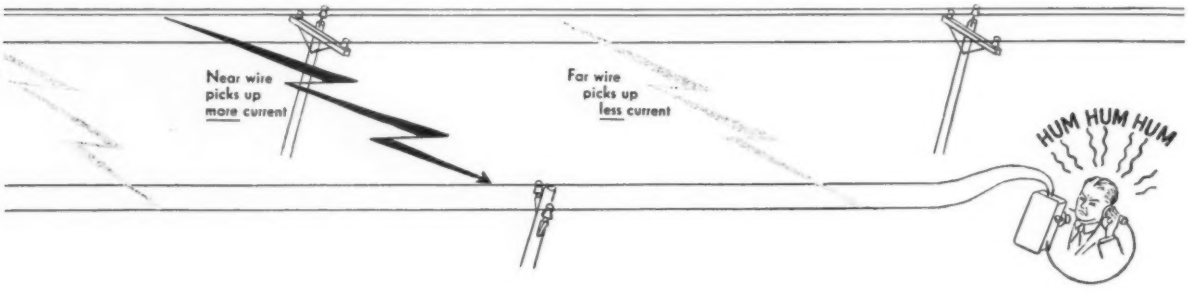
Make six half turns . . . Then cut off the ends of the wire. . . . . .

Sleeves make the best splices. They cost very little, and should be used on *all* splices. A hand splice is not nearly as good as a sleeve splice because it rusts too quickly. If you have to use a hand splice, however, make it like this

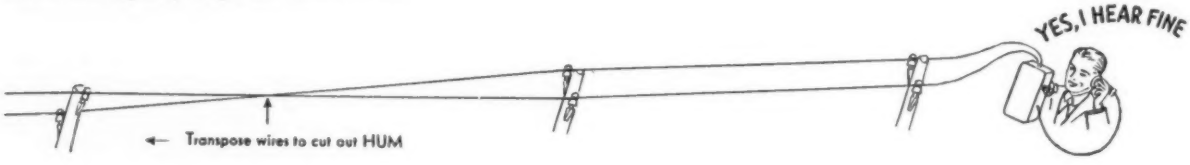
XUM

HOW TO PROTECT TELEPHONE FROM POWER LINE HUM

THERE IS BOUND to be trouble when a power line runs alongside grounded telephone lines, causing a "hum." The best thing to do is string another wire. Make the telephone line a two-wire circuit. Then "transpose" the wires every few spans to cut out the power hum. This costs less than many persons think. Even a two-wire telephone line will pick up electrical current through the air. The telephone lines act something like a radio aerial in catching the power current. The hum in the telephone is caused by the wire *nearest* the power line gathering more of the power current. Thus:

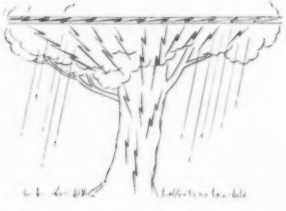


To do away with power line hum, transpose—or change—the position of the wires every few spans so that both wires are equally exposed. Like this:



TREES ROB LINE OF CURRENT

BELOW: Look how the wires got lost in this thicket! One wire is pulling right against a tree. That's bad when it rains. Water carries electricity almost as well as a wire. In a rain, telephone current will run down those wet branches and get lost in the ground. Then one may not hear over the line at all. All of those branches should be trimmed back about two feet from the wire.



XUM

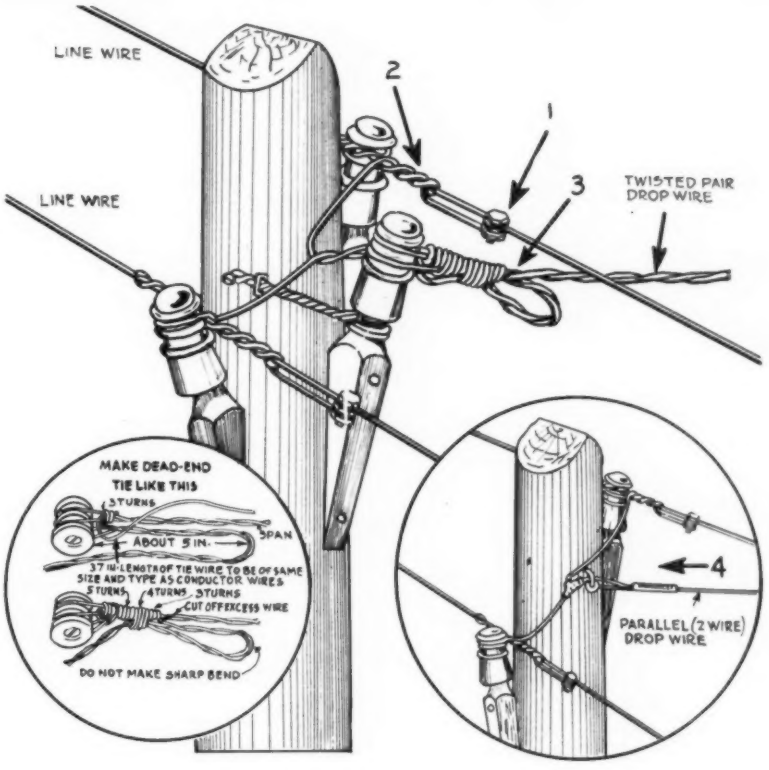
HOW TO CONNECT DROP WIRE TO LINE WIRE
(two-wire line)

1. These two little clamps, called "bridging connectors," connect drop wire to the line. They make a tight, rust-proof connection. Hand splices are no good here.

2. Wrap drop wire around line wire a few turns.

3. Attach drop wire to separate insulator with dead-end tie. How to make tie is shown in smaller circle.

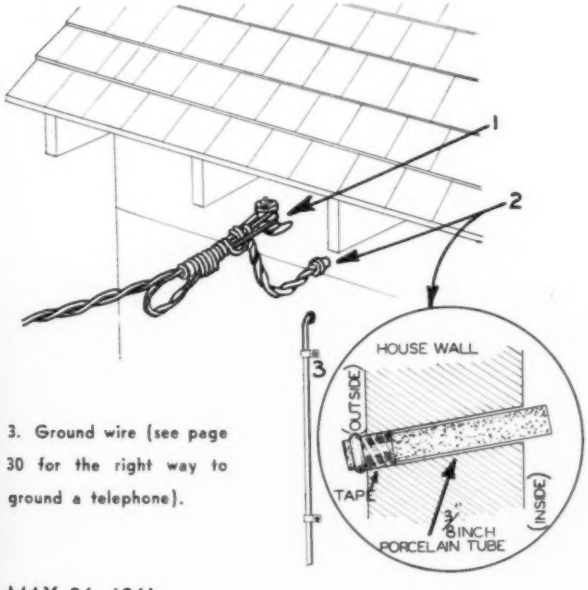
4. Another method is a special "drop wire clamp." It's easier and quicker to put up. Inquire about these clamps.



HOW TO ATTACH DROP WIRE TO HOUSE

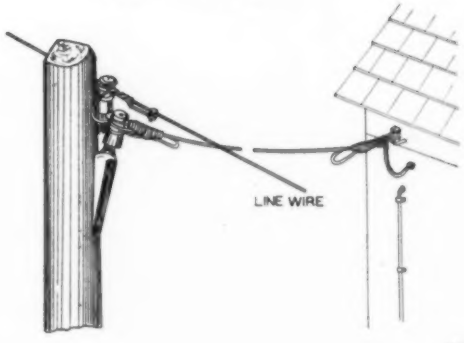
1. At the house, the most important thing is insulation. To get that you need this angle screw with a porcelain knob on it to insulate the wire from the house. Then put the wire on the knob with a dead-end tie or drop wire clamp.

2. Where the wire goes into the house, you need an electrician's porcelain tube to go through the hole in the wall. It insulates the wire from the wall; but be sure to slant it up so the rain won't come through it.



3. Ground wire (see page 30 for the right way to ground a telephone).

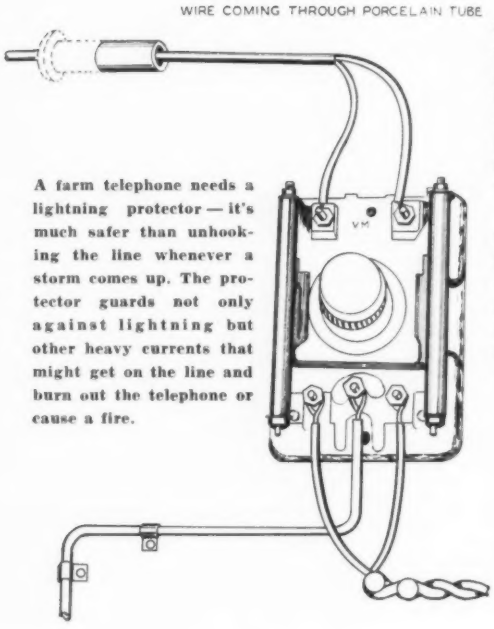
CONNECT ONE-WIRE LINE THIS WAY



XUM

HOW TO CONNECT HOUSE LINE TO TELEPHONE

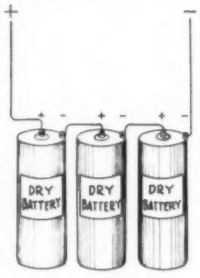
(two-wire line)



A farm telephone needs a lightning protector — it's much safer than unhooking the line whenever a storm comes up. The protector guards not only against lightning but other heavy currents that might get on the line and burn out the telephone or cause a fire.

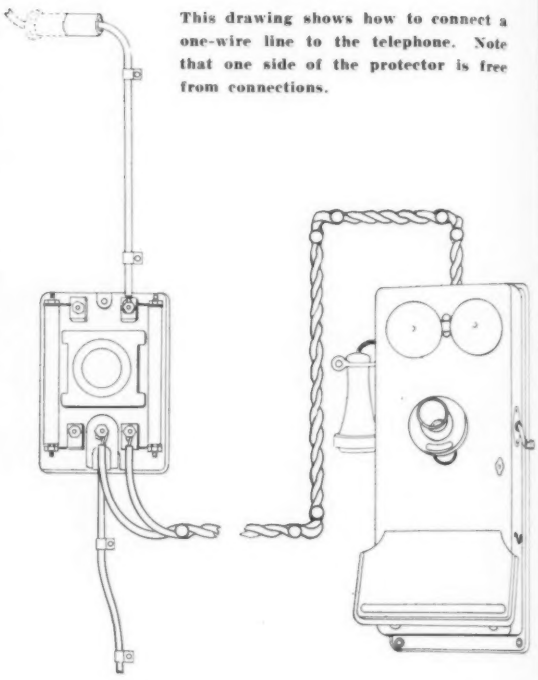
It's best to use No. 22 insulated copper wires to connect telephone to lightning protector. If these wires are twisted together —what is called No. 22 twisted pair inside wire — they'll be easier to put up on the wall (as shown).

Batteries especially made for telephone operation should be used. Replace with new batteries every 12 months, or when test shows batteries are weak. Mark batteries with date they are placed in use.

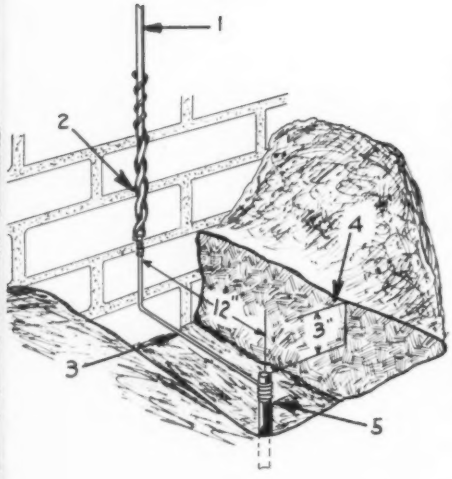


(one-wire line)

This drawing shows how to connect a one-wire line to the telephone. Note that one side of the protector is free from connections.



CONNECTING GROUND ROD



1. Use No. 14 insulated copper ground wire to connect protector to ground. It won't be necessary to use a porcelain tube where it goes through the wall, but ground wire should enter a different hole than the drop wire.

2. Use a copper combination to make this joint, the way the drawing shows.

3. The rod should have a three-foot piece of heavy copper wire (No. 12) soldered on top end. These rods can be bought already made up with the wire soldered on.

4. The rod should be buried, so top will be about three inches below surface. Bury the wire, too, then bring it up to make the connection above ground.

5. Use an iron rod, half an inch in diameter, about five feet long, and pointed at the bottom for driving.

MATERIALS NEEDED FOR FARM LINE

ANCHORS—Different types available.

BRACKETS—10-inch wooden pole brackets.

CLAMPS—Drop wire clamps.

CONNECTORS—Two types: one for connecting iron or steel wire to iron or steel, and another for connecting iron or steel wire to copper.

INSULATORS—Glass insulators.

KNOBS—One single-groove porcelain knob (for use with angle screw in making house line connection). Three or four two-groove porcelain knobs (for attaching drop wire to wall of house).

NAILS—30-D galv. nails (one for each bracket). 60-D galv. wire nails (one for each bracket). ½-inch inside wiring tacks. ⅞-inch inside wiring tacks.

POLES—Cedar, cypress, chestnut or creosoted pine, approximately 4 inches' diameter at top.

PROTECTORS—Lightning protectors.

RODS—½-inch x 7 feet anchor rods. ½-inch x 5½-feet ground rod with 3 feet of No. 12 copper wire soldered onto top.

SCREWS—One ⅜-inch angle screw (see "Knobs").

SLEEVES—One combination No. 12 x 14 copper sleeve (for connecting ground wire to tail wire of ground rod). Tinned steel double tube sleeves (for line wire).

STAPLES—½-inch galvanized wire staples. 1½-inch galv. wire staples (to attach ground wire to house).

TELEPHONES—Hand, desk, or wall type magneto, common battery, or dial subscriber's set. (Ask manufacturer about proper type of ringer and generator).

TUBES—One ¾-inch x 8¾-inch porcelain tube (to bring drop wire through wall of house).

WIRE—No. 12 BWG galv. iron or steel wire (for line wire). Parallel drop wire. Paired inside wire. No. 14 insulated ground wire.

XUM

THE OPERATOR

Keystone of Community

By MAYME WORKMAN
Traffic Supervisor,
The Illinois Telephone Association

SCIENCE and invention have revolutionized the mode of life in rural communities, making it comparable, in many respects, to that of the city dweller. In days gone by, a farmer had certain marks of distinction by which he could be easily recognized. Not so today. Generally speaking, his dress, his manner, and his conversation are similar or identical to those of the urbanite. Such expressions as "Hayseed," "Backwoodsman" and "Clodhopper" are rarely heard.

News. In earlier years news traveled slowly. Mail came to the town post office, and the farmer could get it only when he came to town. With roads often impassable for several weeks at a time, out-going mail could not be depended upon to reach promptly the folks outside of town. Today, although only 40 years old, rural free mail delivery serves nearly eight million families.

Fire was the occasion for a midnight alarm—spread by the farmer's telephone.

Courtesy, A. R. Bowen, Bell Movie & Camera Club of Denver, Colo.

Telephone Ends Isolation. A few years ago, farm residents were more or less isolated, particularly during the winter months. The radio did not bring current daily news and market quotations; there were no automobiles to whisk them to town over paved roads which formerly were impassable most of the winter season; no farm bureaus or other similar organizations were in existence.

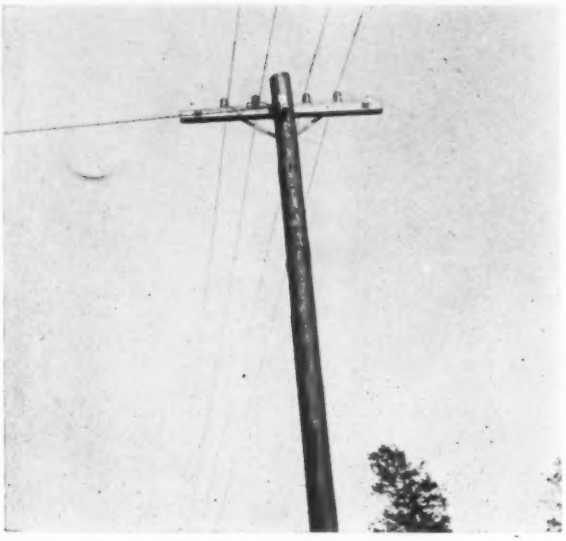
The invention of the telephone ended isolation on the farm, bringing rural neighbors within speaking range. What a boon to the lonely housewife who for days, perhaps weeks, never heard the sound of another woman's voice!

In pioneer days the farm dinner bell was the means of quick communication with the neighbors, and when it rang in the middle of the night every person within hearing knew it was a call of distress. A case of sickness or a burning home was the occasion for such a midnight alarm. Today the telephone fills that place, despite the fact that at one time it was believed the telephone would never be practical for farm use. Today, no farm home is complete or has ample protection without a telephone.

Farm Fire Protection. Fire protection has grown steadily in efficiency since the advent of the telephone. Many rural fire departments have direct wires from the telephone switchboard so that, in a matter of seconds, the operator is able to sound the alarm that calls volunteer firemen to their task and to give directions to the driver of the fire truck. In some neighborhoods this service has been expanded to such an extent that

(Please turn to page 38)

XUM



Example of good rural line construction.

A good example where tree trimming is necessary to prevent trouble.

Using short poles to take line wires under large tree limbs avoids excessive trimming.

APPROVED M

FOREWORD: Telephone men all agree that to correct irregular conditions on telephone lines and equipment before they cause trouble which results in service interruptions is highly desirable. The one difficulty is knowing just how to approach this problem in an approved manner. Lines may be inspected at certain intervals and visual irregularities corrected, but numerous serious conditions which are not noticeable may also need attention. Certain tests may be made to indicate many weak points while others may be detected only from long experience in solving difficult maintenance problems.

Daniel Seitz is a successful, practical telephone man of long and varied experience and in this series of articles he will explain how you may avoid many serious and costly mistakes in the maintenance of your lines and equipment.

He will also tell you in understandable language how to correct certain factors which often cause serious trouble although they may not be recognized by the average individual even after the same trouble has occurred several times. We feel sure that careful consideration of the methods he recommends will not only save you trouble and expense, but will also improve your service in general.

We suggest you read each article of this series carefully and then file them for future reference because they will contain much valuable information never before placed in print. — *Ray Blain, Technical Editor.*

* * *

PART I

Telephone companies, both large and small, all observe certain plant methods and practices in the

This installation of an outside-mounting weatherproof substation protector has been well done.

XUM

Maintenance Practices

By DANIEL SEITZ

performance of their work. If you perform certain tasks in a tested and approved manner, you may consider the system used as methods and practices. We all have some pet ways of performing certain tasks in our daily work. Therefore, we do not intend to suggest that you change your present methods, but rather urge that you expand them if necessary to include some form of preventative maintenance, wherever possible. This practice will make for both larger profits and better service.

Naturally, some companies do not have liberal amounts of money to spend and it is believed that they often overlook numerous possibilities of using a portion of what they do have where it will do the greatest good.

As an investment, the practice of performing work to prevent trouble will prove desirable for the entire plant. Naturally, the first question is where to begin and how to decide where this method will prove most effective.

Right here, we wish to state that few telephone plants are so good that they cannot be improved. Usually, we do not experience any difficulty in finding places to make improvements if and when we have the inclination and finances with which to perform the work.

One direct method of determining locations in the plant where preventative maintenance can be applied is from men in the field. These men, if alert and encouraged, usually know just where to perform such work. "Encouraged" should be especially noted, for to ridicule any idea advanced by a worker, which may prove at all practicable, often makes that man indifferent to his work thereafter. It is far better to lean backwards a long way to try an idea rather than to ignore it. If the idea works—fine. If it doesn't, the workman will have learned something as well as the company, and all will benefit thereby. At least the worker will know his superiors have open minds, and his loyalty and respect will be greatly increased.

Another method which has proved highly desirable is to summarize your reported troubles for, say, six months or one year. If your trouble tickets are complete, they will indicate the date trouble was reported, its nature, when and by whom cleared.

You will be surprised to learn how often the line to Bill Jones' house was short-circuited in the trees between his house and the main line. Yes, you can look through your trouble tickets and learn this, but it is like looking through a picture book. As you turn the pages, you soon forget the contents of the previous page.

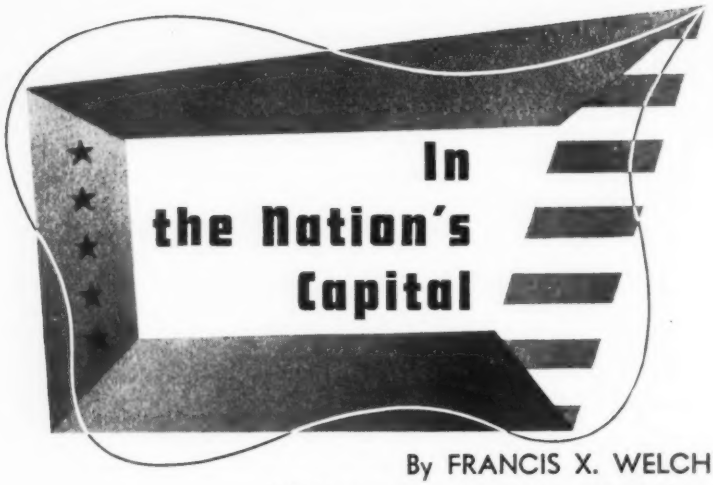
It will prove worth while to summarize the trouble on each line as follows:

Exchange line, No. and date	*1939 Report Individual or line trouble reported*	*Date Cleared*	*By*
3-19-39	Line CRX. Short at pole No. 15	3-19-39	R
6- 2-39	Ness CRX. Fuse open.	6- 3-39	R
9-21-39	Line CRX. Short between pole 15 and 16.	9-21-39	L
10-11-39	Stiles can't hear. New receiver cord.	10-11-39	L
11-14-39	Line CRX. Short between pole 18 and 19.	11-14-39	L
	1940 Report		
5-31-40	Line CRX. Wire down between pole 41 and 42.	5-31-40	R
6-14-40	Line CRX. Fuse open cable term.	6-14-40	R
9- 9-40	Stiles CRX. Men working on line.	9- 9-40	L

(Please turn to page 40)

A wire chief's test set is essential for the best maintenance of telephone lines.

Portable testing instruments prove a worthwhile investment for a telephone exchange.



By FRANCIS X. WELCH
Washington Correspondent for TELEPHONY

Long-threatened congressional investigation of the FCC looms anew, as broadcasting industry and FCC put on boxing gloves. . . . A. T. & T. brief, filed in long distance citation, asks FCC to prescribe separation method concerning interstate and intrastate rates, which might involve Independent companies. . . . Keystone-Bell hearings ended, unless interveners are granted new hearings

LAST WEEK was another big week on the communications front. Of immediate interest to the telephone industry, of course, was the continuation of the Keystone-New Jersey Bell merger hearings in Philadelphia and the filing of the AT&T reply brief in the toll rate investigation pending before the FCC (noted in last week's TELEPHONY).

Early this week the Senate Interstate Commerce Committee opened hearings on the telegraph merger which is favored by FCC Chairman Fly and Senator Wheeler. Also of considerable interest was the action of the FCC May 19 in inviting the NARUC to participate in the Bell toll case (see item on "Commission" page).

Probably of more general importance—because it involves possibly the very future of the FCC as presently constituted—was the row between the commission and the National Association of Broadcasters which was aired in the latter's annual convention in St. Louis. Repercussions of this controversy are adding fuel to the smoldering resentment against the commission in Congress. It is doubtful whether the Federal administration will be as successful in keeping the lid on the long-threatened congressional investigation of the FCC as it has been in the last two years.

In fact, sufficient heat has been generated to blow the lid off the White resolution calling for a general investigation of the FCC and radio broadcasting (introduced some time ago by Senator White of Maine). The Senate Interstate Commerce Committee has set May 31 to open hearings on the White resolution.

The situation has been characterized by what may turn out to be some blundering on both sides of the FCC-broadcasters' tangle. You will recall, from the widely-publicized accounts in the newspapers, that the two older broadcasting chains—National Broadcasting Co. and Columbia Broadcasting System—were angry about the five-to-two FCC report issued earlier this month which included proposed regulations for curtailing the activity of the two networks.

The third great chain, Mutual Broadcasting System, stands to benefit from these regulations if they are put into effect. That is because Mutual members would be enabled to bargain for network programs which have heretofore been tied up by exclusive network contracts. However, Mutual probably would have gone along with the National Association of Broadcasters if it had not been that another and entirely unrelated difference between Mutual and the two older chains was brought to a boil about the same time.

This was the troublesome music royalties war between the American Society of Composers, Authors and Publishers and the radio networks. NBC and CBS figured that their own *protege* in the Tin Pan Alley business (Broadcast Music, Inc.) is getting along so well that the broadcasters definitely have ASCAP on the run. They were, and still are, apparently disposed to keep ASCAP tunes off the air until the composer group surrenders unconditionally. But Mutual had other ideas. It decided to make a separate peace with ASCAP on the basis of a fairly generous compromise offer from the latter. *(Turn to page 44)*

XUM

THINGS THAT COUNT

ONE PIECE BAKELITE FACE PLATE AND INSULATING FANNING STRIP

STURDY, NON-CORRODING EVERDUR STUDS WITH TINNED SOLDER SHOULDERS

STUDS FIRMLY EMBEDDED IN MOUNTING PLATE CANNOT TWIST OFF . . . . . POSITIONED FOR CONVENIENT WIRING

. . . . PATENTED CABLE ENTRANCE AND HOLDING SLEEVE FOR TIGHT CABLE JOINT

COMPOUND FILLED BY EXCLUSIVE PROCESS INSURING AGAINST SHORTS AND GROUNDS

HEAVY REVERSIBLE ZINC HOOD—MOUNT WITH STUB FROM TOP TO BOTTOM

DETACHABLE MOUNTING BRACKET FURNISHED AT NO EXTRA COST

FURNISHED IN 6, 11, 16 AND 26 PAIR SIZES

IN CABLE TERMINALS

THE things that count in cable terminals are all included in the Cook XB . . . . . engineering skill, precision manufacture, highest quality materials **and a knowledge of the job to be done.**

It is this latter quality that distinguishes all Cook protection and distribution products. **It is a knowledge of the job to be done** that has made Cook equipment the standard for the telephone industry throughout the world.

Cook products are distributed by all telephone equipment manufacturers and supply houses. Ask to see the XB today.

COOK ELECTRIC COMPANY
2700 SOUTHPORT AVE., CHICAGO

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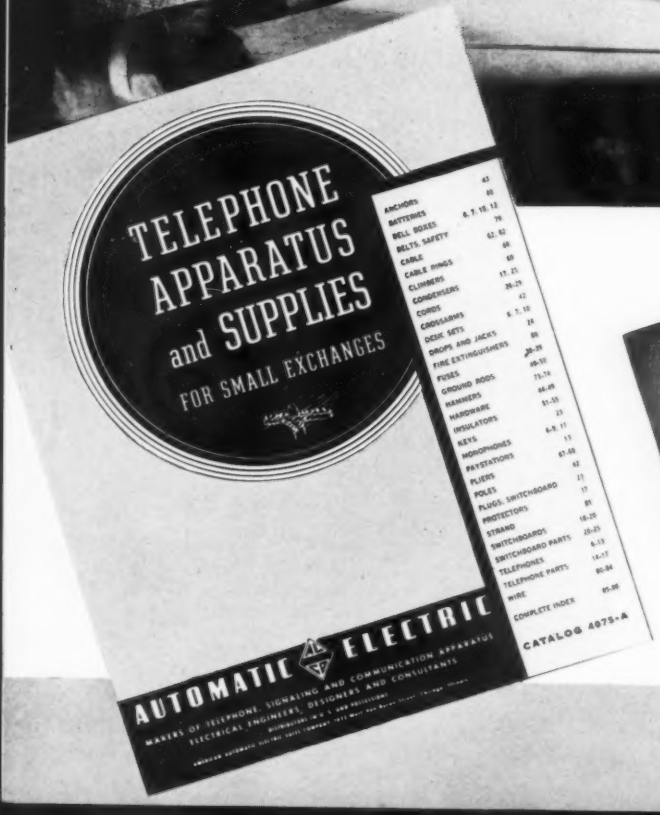
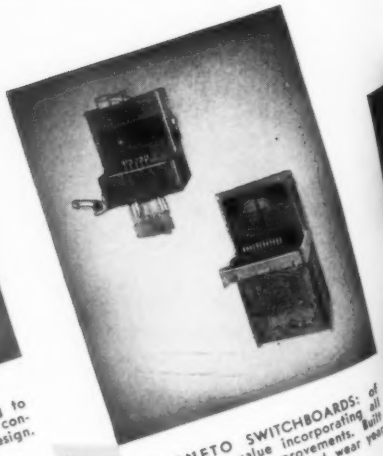
"MR. JONES, YOU CAN BUY FRO



MAGNETO TELEPHONES: bring to the rural user the beauty and convenience of truly modern design.



MAGNETO SWITCHBOARDS: of outstanding value incorporating all latest operating improvements. Built to withstand tough, hard wear year after year.

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...M THIS CATALOG BLINDFOLDED!

...and yet be sure of the highest quality in every item you select."

You would hardly buy telephone equipment or supplies with your eyes shut! But—you'd be perfectly safe in doing so from Catalog 4075-A.

This catalog features practically every item of equipment, supplies and construction tools needed for small exchange operation. Here you will find only products of proved worth—products which you can buy with complete assurance that they will give long satisfactory service.

Why? Because every item has been selected by men who know your problems, and who exercise the same care you would use in choosing products for your own exchange. In addition, they have been thoroughly tested in the field and in the laboratory by our experienced technicians. As a result, you can be sure you will get top performance and quality.

Top quality may sometimes cost a few cents more, but you know that the use of quality products earns more for you in better satisfied subscribers, lower maintenance costs and longer life.

Use Catalog 4075-A for top quality and greater earnings.

AUTOMATIC ELECTRIC

ORIGINATORS AND DEVELOPERS OF STROWGER STEP-BY-STEP MACHINE SWITCHING AUTOMATIC DIAL SYSTEMS

MAKERS OF TELEPHONE, SIGNALING AND COMMUNICATION APPARATUS
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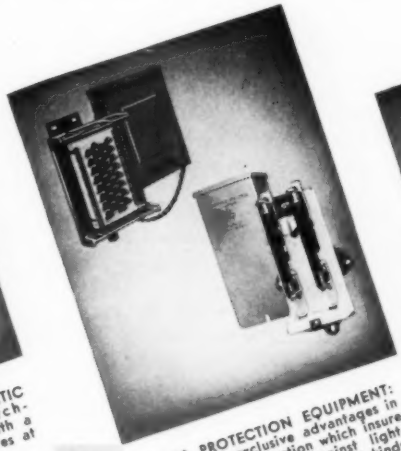
EXCHANGE ACCESSORIES: include testing equipment, ringing machines, repeating coils and other time and money-saving products for small exchange operation.

C-A-X's (COMMUNITY AUTOMATIC EXCHANGES): automatic switchboards for small exchanges with a wide range of desirable features at new low cost.



SANDS PROTECTION EQUIPMENT: incorporates exclusive advantages in design and construction which insure complete protection against lightning and stray currents of all kinds.

TELEPHONE SUPPLIES: of highest quality, designed specifically for telephone use. Prices are rock bottom due to our large purchasing power.

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The Operator — Keystone of Community

(Continued from page 31)

the operator calls all the neighbors in the vicinity of the fire so quickly they are on the job with a water supply to feed into the booster pump by the time the fire truck arrives.

Sickness in the Country. Sickness on the farm used to be a desperate thing, with the doctor miles away and no quick way to get word to him. Today, the doctor is as close as the telephone, and, in case of emergency, the patient can be rushed to the hospital where doctors and nurses are prepared for him because of telephoned warning.

Transportation. The automobile has enabled people living in rural communities to travel extensively; therefore, they are familiar with the city dwellers' mode of life. They are aware that many city homes have automatic heat; that houses are so constructed heat loss is reduced in winter and temperature is lowered in summer; that telephones are streamlined and, in some localities, you can reach the desired number by manipulating a dial.

Thus we are brought to the realization that the telephone exchange in a small village and its operators are *keystones* in the community, supporting factors in the business and social life of the inhabitants.

Operators Should Realize Their Importance in the Community

Inferiority Complex. Frequently operators in small exchanges are inclined to underestimate the importance of their position in the community and the service they are rendering. This is often reflected in an operator's remark, such as, "I work in just a *small* exchange. We only have a few subscribers. These new things you have been telling us about are all right, I guess, but we couldn't use them in *our* office. I don't think our subscribers would like to have us change our way of operating." What a mistaken idea!

A Combination Job. In large central offices, the work of operators is more or less confined to a specific service, such as, local operating, CLR, point-to-point, inward, directory or information service. In a small exchange, the switchboard operator is ordinarily required to render all of these services. She is usually a combination switchboard operator, information operator, chief operator and cashier.

Information Service. While all telephone operators have the same responsibility of rendering satisfactory telephone service, there is a vast difference in the accomplishment of these responsibilities on the part of large and small exchange operators.

As an example, the duty of the information operator in a metropolitan area consists mainly of supplying telephone numbers not listed in the current directory, but the information requested from the small exchange operator encompasses practically everything under the sun. She is frequently a centralized bureau of information.

Familiar queries are "What time is it, Central?" and "Where is the fire?"

The correct spelling of a word, the weather forecast, what to do for the baby's colic and "What day of the month is this, Central?" are not uncommon questions to small central office operators.

"Has Mr. so-and-so died yet? I saw a lot of cars at the house?" or, if he hasn't died, "Do you know when they expect him to?" (a true example) are among the many inquiries coming under the heading of "Information Service" in a small exchange.

Key Folks in Community. Operators in small telephone exchanges should not develop a feeling of inferiority. On the contrary, they should appreciate the importance of their position, that of "key folks" in their community.

The inhabitants are dependent upon the small town telephone operator. She is their friend-indeed. She knows their joys and sorrows; their voices are familiar to her; she is often their confidante and counselor in times of distress; her voice is comforting to a worried mother, trying to reach the doctor to attend her little child who is ill, and to the little old lady who lives alone and calls in to request the time of day, just to hear the operator's kind response.

The small exchange operator who underestimates the importance of her position is inclined to render inferior service. She will be content to use outmoded phrases, such as, "waiting, waiting" which, when spoken carelessly, sounds like "wedding, wedding" in preference to using the modern phrase, "Operator, are you through? Are you through?" when challenging on a line. She will also be inclined to use that obnoxious word "Heddo."

Proper Training. Many small exchange operators are handicapped by lack of proper training. This training should be given when the operator is first employed and not several years later after she has acquired bad operating habits which are difficult to correct.

Management's Attitude. Operators in small exchanges who appreciate the importance of their responsibilities are sometimes discouraged by the management's lack of interest. Some managers consider it an unnecessary expense to send their operators to a school of instruction at a district meeting or state convention, saying, perhaps: "What's the use of sending the girls? They'll not learn anything!"

Experience has proven otherwise. An operator who is given half a chance will usually do her part. Rare, indeed, is the operator who is disinterested and has no desire to improve her efficiency.

Another source of discouragement on the part of small central office operators is the management's lack of interest in proper switchboard maintenance. Ragged, frayed cords, bent plugs, loose jacks and defective ringing keys prevent operators from rendering efficient telephone service.

Rural Service on Decline. According to various statistics, rural telephone service is on the decline in many communities. Several reasons have been cited as being responsible for this condition, such as, outmoded equipment, lack of proper maintenance, inadequate rates, poor transmission, nonaggression in securing new subscribers and, occasionally, poor service. Statistics have also revealed that the use of the telephone is decreasing in small towns compared to its use in large communities and, various opinions have been expressed as to the reason for this decline.

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The operator in a small exchange is frequently a centralized bureau of information.

All individuals having an interest in the telephone business—owners, employers, employes and stockholders—should be concerned in the growth or decline of the business.

Customer Relations. Every switchboard operator should be cognizant of the fact that inferior service not only destroys pleasing customer relations but it also has a detrimental effect upon the growth of the business. Inferior service is difficult to sell.

Good customer relations and the quality of the service rendered are frequently determining factors in securing necessary rate increases. Subscribers and state regulatory bodies expect telephone companies to render courteous, accurate and speedy service consistently as well as providing adequate facilities and proper maintenance.

Telephone Equipment. A telephone company is not always financially able to install a new switchboard when, in the operator's opinion, the board in use should be replaced. In other instances, the company may have some very good reason for deferring the purchase of new equipment. In any event, operators should strive to render the best service humanly possible, at all times, under all circumstances. If service rendered in the past has not been up to par, we may as well forget about it. Everything passed is beyond recall, therefore, we should concentrate our attention upon future service which is in the making.

A Dangerous Practice. Listening-in unnecessarily on telephone connections has always been prohibited by telephone companies. Now, as never before, we are urged to refrain not only from listening in but from discussing anything we might happen to hear in our line of duty. The danger of loose talking is recognized by our government by its action in incorporating the following slogans in interoffice telephone directories furnished officers and civilian workers of the navy department:

1. Loose words may lose ships.
2. Beware of inquisitive friends.
3. Do you know who is listening?
4. Careless talk loses lives.
5. Walls have ears.
6. Do not repeat rumors.
7. Gossip is faster than radio.
8. Do not use telephone for secrets.
9. Keep your own counsel.
10. Idle words may reveal vital information.

Our Business. The business we represent is part and parcel of our American way of living. It is a fascinating business, ever becoming more complex and taxing our ingenuity, ability, power of imagination and observation to the utmost. The responsibility of supplying the communication needs of a nation is no small job. Switchboard operators in every telephone exchange, large or small, occupy key positions in the telephone industry; therefore, careful selection and training of switchboard operators is imperative.

Devotion to Duty. In the past, men and women in the telephone industry have exemplified the ideals of their profession, the true "Spirit of Service" which cannot be daunted by any calamity, be it fire, flood or personal danger.

At this time when our country is faced with grave and serious problems, telephone people will not be found wanting. Their loyalty to their country and to their profession will find expression in their work of supplying the communication needs of the nation; of rendering telephone service that is free, so far as humanly possible, from imperfections, errors or delays.

Now, as always, it is a pleasure and a privilege to be engaged in an industry, vital to the nation, to the individual and to the entire human race.

[EDITOR'S NOTE: *This address was presented by Mrs. Workman before the traffic conference during recent convention of the Iowa Independent Telephone Association.*]

Quick Telephone Work Saves Burning Home

Operators in the Rockford office of the Illinois Bell Telephone Co. recently shared honors with the Stillman Valley volunteer fire department in preventing the farm home of Leon Donneaud, nine miles south of Rockford, from burning to the ground.

Although the two-story frame house was extensively damaged, quick response of the fire department and neighbors rallied by telephone calls from Rockford prevented complete destruction of the building, which recently had been remodeled.

Mrs. Donneaud was working in an upstairs room when she noticed smoke coming from the wall of the room. She knocked a hole in the plaster and smoke and flames puffed out.

She hurried to a nearby school and sent one of the pupils to the nearest telephone at the home of Hugh Mainland. Mrs. Mainland called the Stillman Valley fire department and furnished the Rockford switchboard operators with a list of telephone numbers of neighboring farms.

The operators worked swiftly and notified several farms in the vicinity. Scores of volunteers answered their alarms and aided the Stillman Valley firemen by removing furniture and carrying water from tanks to the pumper truck. Water was hauled from neighboring farms and played on the flames.

Although heroic work by the volunteer firemen and neighbors prevented complete destruction of the home, it was pointed out that had the Donneaud home been equipped with a telephone, much additional time would have been saved and the fire prevented from getting a head start.

XUM

Approved Maintenance Practices

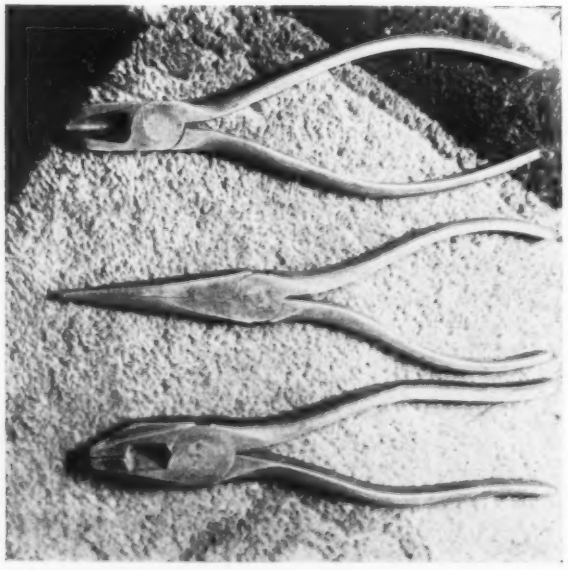
(Continued from page 33)

The foregoing are typical line and station reports of one small exchange. The 1939 report clearly indicates that preventative work should consist of pulling slack, trimming trees or otherwise removing the cause of the shorts. The 1940 report definitely indicates the benefits of such work which can be readily detected at a glance of the trouble summary.

We shall now attempt to indicate specific cases where preventative maintenance may be used to advantage. The inside wiring from station protector to the telephone is often run through damp basements, causing the insulation to break down under tacks or staples due to this moisture. This is especially true when the line is common battery or automatic. The reason for this corrosion is that the battery current on the line causes an electrolytic action similar to corrosion which occurs on automobile batteries.

The pertinent question is whether to replace this wire with one of better insulation and more suited to give service under these adverse conditions, or to just splice in a short length of the same type wire and hope that it will work at least until the troubleman gets back to the office.

One method by which this condition may be remedied and permanent repairs made is to replace the regular inside wire with bridle or drop wire which has a much better and heavier insulation due to the fact that it is intended primarily for outside use. This type wire should be attached to insulators or other suitable fixtures.



Good pliers are always necessary in telephone work.

DANIEL SEITZ is cable superintendent of the York Telephone & Telegraph Co., York, Pa.

Where a number of inside wires are installed in a damp location, a screw eye equipped with a porcelain insulator and provided with a slot to permit the placing of additional circuits at any time without pulling the wire through the entire length of insulators is often used to advantage.

The moving of the protector to a dry location and making sure that the ground connection is good is one form of preventative maintenance which will always prove desirable. Changing of the protector so that it will be mounted in a vertical position may also save a trouble trip later.

We assume there are many protectors remaining in service which employ carbon discharge blocks separated by dialectrics which have a slot along one side to permit the automatic cleaning of the carbon dust. Arresters having this type of discharger are often affected by accumulation of moisture between the discharge blocks causing the ringing current to arc across the gaps to ground. Dialing impulses may also cause discharges across the gaps when carbon dust is permitted to accumulate.

By installing the arresters in a dry location and in a position so that the slot in the dielectric is at the bottom the carbons will have a tendency to clean automatically and the dust will usually drop out. The mistaken idea should not be had that to replace the old style carbons with modern discharge blocks will automatically eliminate all protector troubles, good though the new blocks are.

The modern discharger blocks possess many desirable features, one being that a solid ground is not likely to occur and cause trouble on the line, and at the same time they do carry off the lightning charge for which they are intended, thereby protecting the expensive station equipment. But to do this they must be provided with a good, low resistance ground connection.

How good should the ground connection be and how can anyone determine whether it is good or not? Inexpensive ground testers are now on the market and one or more can be used to good advantage in any telephone exchange. The method of connecting ground wires to water pipes for station protection is generally accepted as good practice. Care should be exercised, however, to make sure that the ground clamp or other connection makes a good low resistance contact.

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ALL over the country General Electric Copper Oxide and Tungar Chargers are keeping telephone company battery systems in tip-top operating shape. The model illustrated here is used by many telephone companies. If this isn't the model you need, tell us about it. We have one for you.

Section A-146—Appliance and Merchandise Department, General Electric Company, Bridgeport, Connecticut.

6RB6B17 Tungar Battery Charger With Filter Reactance—This 12-amp. full-wave Tungar is excellent for float-charging telephone batteries. It offers a wide charging range (6 to 65 volts, 2 to 12 amperes) and highly efficient operation. External filter reactance available.

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When ground rods are used, they should be mechanically strong and have sufficient cross-section to permit driving without excessive whip. The greater the cross-section of the rod, the greater its contact with the earth which is always desirable. It seems ridiculous to carefully solder all connections and then drive or bury any convenient piece of metal, trusting to luck that it provides an adequate ground connection. When this practice is followed, it is not unusual to find service interrupted and equipment damaged due to the lack of a good ground.

The resistance of the ground determines its quality. For substation protection, a resistance of not more than 15 ohms is generally considered satisfactory. Substation grounds are not generally measured for resistance due to the cost and lack of suitable equipment. However, ground testing these days need not be a complicated process. Where unusual trouble is encountered because of equipment failure from lightning or where the ground is used for selecting ringing, dialing, etc., a check of the ground resistance is both desirable and necessary.

An attempt will be made to describe a method of ground testing with a Wheatstone bridge in a later instalment in this series in connection with cable and central office protection. Plant men are usually of the opinion that equipment and tests of this nature are complicated, mysterious and most difficult to conduct, but such is not the case as we hope to prove.

(To Be Continued)

▼ ▼

Developing Rural Telephone Business

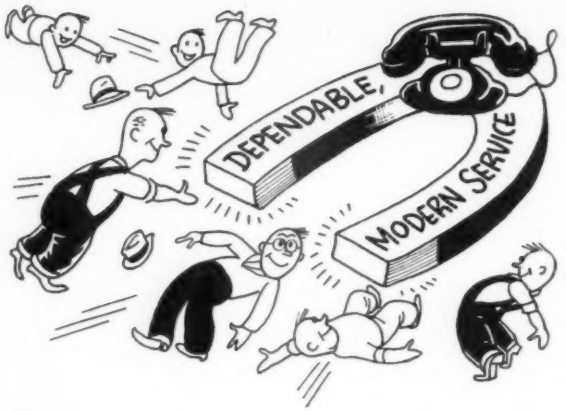
(Continued from page 22)

must recognize that good telephone service must be rendered to the community as a whole, and not only to the urban area.

From time to time we make rural surveys, from which we try to develop answers to our problems. It would seem to me that the prime factor to be determind is *whether or not there is a market for our service*, and if so, then we should find some means of selling it.

But first, we must develop new methods of salesmanship, new appeals, and possibly new methods of financing. You never heard of a manufacturer of a new type of farm tractor sending his salesman out to prospective buyers and saying to them, that if they will contract for so many of this new tractor at such and such a price, the manufacturer will go ahead and produce it for them. However, this is exactly what a majority of the telephone companies do.

Again, I do not believe that the most skilled salesman and the most attractive and convincing advertising in the world can sell to any group of the American people an article that is obsolete. In other words, you cannot sell the Oklahoma farmer a "Model T" Ford while your competitor is offering him a "V-8."



More rural people will patronize and use telephone service, if they are convinced it is modern.

We are told that the first requisite of salesmanship —in creating a desire to own or use a product or service—is the production of a modern and dependable article. One that is as free from mechanical faults as possible; one that will appeal to the prospect's pride of ownership, and one that will meet the exacting sense of value inherent in the American people.

The telephone people of Oklahoma have failed to recognize these essential facts, as exemplified by the poor construction, equipment and service, throughout the rural areas. We are trying to meet the present-day demands for modern streamlined service, and the energetic competition of other services and conveniences, with plants, equipment and service that have been out-of-date for several years.

The committee, concluding a report in connection with a rather comprehensive survey recently made in another state, among other things, states: "Today, pride of ownership is a contributing factor in the purchase of many articles. To feel that sense of pride requires that the article purchased must be modern, dependable and have popular acceptance."

Therefore, it is evident that other telephone people are concerned about the quality of service being furnished and find it necessary to work out answers to these problems.

Offer Farmers Modern Service

It is my opinion that more rural people will patronize and use telephone service if they are convinced that the service being offered is modern. As an illustration, in 1940 we converted one of our smaller exchanges to non-attended automatic service. Of course, in making this conversion, it was desirable to metallicize the rural lines, place them on substantial poles, replace rusty line wires and improve insulation.

We had six switched, or so-called service lines, with about 45 subscribers. In trying to get these subscribers to see the advantages of metallic, common battery dial service, carried over properly constructed outside plant, I was unable to convince them that their service could be improved. They had become so accustomed to service built and maintained on two-by-fours, black jack saplings, and fence posts, where every disturbance of the elements threw their lines out of service,

XUM

that to them my arguments that the proposed improvements would give them the very highest type of service that could be produced was preposterous.

By any comparison with their old service, the idea of providing common battery dial service five to seven miles in the country was rank folly. Any they would not consent to spend their money to improve their facilities. *However, they were willing for the telephone company to do it.*

We surprised those people by building a line six miles out, using the best of materials and standard construction. Today we serve 10 highly pleased customers. We have on hand 17 applications for service, and daily, as more people see the dependability and superiority of this service, we get inquiries and applications, and I feel quite sure that by the end of this year we will be serving from 50 to 75 rural customers out of this exchange.

Of course, I do not suggest that for you to improve your rural service, it is necessary that you convert to dial equipment. I am, however, trying through this illustration to convince you that it is necessary for you to very materially improve your rural service.

Improved Service Paves Way for Higher Rates

In contemplating any proposed improvements in service, we invariably run into the problem of cost, revenue, and return. Again I think that we have not approached this problem with proper confidence in our prospective customer, as to his willingness to pay a proper rate for a high type service.

Inasmuch as our rates are regulated by commissions, elected by the citizenry as a whole, it would seem to me that the matter of providing adequate revenue to justify building and maintaining proper rural service becomes the problem of all the people, as well as of the telephone companies.

The business man, particularly in the smaller communities, should be deeply concerned, because his inability to communicate with the surrounding rural area materially affects his business, and places a definite handicap upon him in his intense competition with larger trade centers.

Therefore, I can see no reason why we should not seek the support of all interested parties in obtaining proper rates so that we may provide for the farmer a class of telephone service that he can use and that he must have in the improved rural economic order.

My experience with our commission members has been that when they are shown that any improvement in service will more completely serve the requirements of those concerned, they are willing to establish proper rates for the service offered.

Service Should Be Improved, Then Advertised

A great deal is said about advertising in the telephone business. It seems that many telephone people are convinced that more intensive advertising is the answer to regaining the lost rural telephone dollar. This may be true to some extent, but I do not subscribe to this theory in its entirety.

I do not believe that any amount of advertising will sell an inferior product at any price. I do believe, however, that proper advertising will lay the foundation for selling a superior product. But, first, you must produce and have ready for marketing the superior product.

I have tried to show that the telephone on the farms and in the small urban communities is losing its popularity. That this loss of popularity is not due to any appreciable extent to economic conditions, but rather to a decidedly inferior type of service. That this loss has become extremely critical, and to such an extent that the rural areas have become a real frontier for additional business and revenue, and that the very existence of a great many of our telephone properties depends upon some method of gaining the support of the rural areas.

To improve the condition, I feel positive that we must materially improve plants and raise the standard of service offered the farmers. If telephone people are unwilling to, or unable to risk the cost of modernizing and streamlining their rural and small urban service, they might just as well forget about it and cease efforts to regain the lost rural telephone dollar, and concede it as gracefully as possible to a more willing and energetic competition.

[EDITOR'S NOTE: *This article was presented as an address by Mr. Baker before the recent convention of the Oklahoma Telephone Association.*]

Pres. Gifford of the Bell System says—

In his Annual Message to the stockholders of American Telephone and Telegraph Co., President Walter S. Gifford, speaking of *advances* in *practices* that showed a profit, says, "Rubber covered wire, plowed into the ground . . . is being used for reaching subscribers in some rural sections."

PARAGON TWINPLY
All-Rubber Underground Cable

is designed to improve communication, overcome overhead difficulties and reduce maintenance costs in rural installations.

A really advanced construction. No. 17 copper conductors, parallel pair in *double rubber* insulation without braid. Strong, flexible, abrasion and soil-acid resisting, it meets every condition with a lifetime of hard service perfectly rendered. Investigate the economies of Paragon Twinply ALL-RUBBER Underground Cable.

Ask your jobber—or write us direct.

Paragon Electric Co. . . . 35 W. Van Buren St., CHICAGO

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In the Nation's Capital

(Continued from page 34)

NBC and CBS both urged Mutual not to take any final action that would break the united front of the broadcasters against ASCAP. They wanted Mutual to wait until all had a chance to talk the matter over at the St. Louis convention of the National Association of Broadcasters. But Mutual had a notion that if it waited it would be slick-talked out of peace terms. ASCAP had proffered these peace terms on a sort of "special for today only" basis. So Mutual and ASCAP got together and formally buried "Jeannie with the Light Brown Hair," virtually on the eve of the St. Louis get-together.

This caused a certain amount of ruffled feelings. On top of that, a very timely letter was sent from the White House to Mutual congratulating Mutual on its favorable reaction to the radio monopoly report. This letter seems to have infuriated the older network men. It touched off a conflagration of pent-up feelings so that the two little wars were fanned into one big war. Before the St. Louis convention was over, some things were said and feelings were hurt—and finally several Mutual members walked out of the St. Louis convention and resigned from the National Association of Broadcasters.

* * *

So far so good, as far as FCC strategy was concerned. An industry thus divided would not be likely to put up as good a fight against the enforcement of the radio monopoly report as a united radio industry. But it was at this point that the FCC's footwork faltered.

Mark Ethridge, general manager of the *Louisville Courier Journal* and heretofore an ardent New Dealer, as well as a former president of the NAB, delivered himself of a stinging criticism of the FCC monopoly report. This attack went further than a factual analysis of the FCC report. It suggested that the FCC is falling under the domination of a radical group which is intent upon breaking the backbone of private enterprise in the radio industry.

Human nature being what it is, such an attack was probably to have been expected. The unexpected development was a reply in equally bitter terms from FCC Chairman Fly. In this reply he compared the network management to the celebrated "dead mackerel in the moonlight" which "shines and stinks." It is difficult to see just what is to be gained by this exchange of name-calling. The FCC has had more than its share of that sort of thing in the past.

But in recent years, and reputedly through the even-tempered disciplinary influence of Chairman Fly himself, the FCC had been gaining a reputation for

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DRIERITE

DRIERITE dries the Cable Splice by positive absorption of all moisture from wires, insulation, bandage and surfaces inside the sleeve. Application is easy and rapid.

The snow-white **DESICCANT** is neither poisonous, corrosive nor abrasive, and does not evolve gas, fume or odor either in storage or in use. It eliminates all chance of fire, accident or discomfort to workmen or occupants of buildings.

STANDARD PACKAGES

1/8 Pint Can (50 grams) 48 per Carton.
1/2 Pint Can (200 grams) 12 per Carton.
1 Quart Can (800 grams) 12 per Carton.

For sale by the Manufacturer and leading telephone supply houses.

W. A. HAMMOND DRIERITE COMPANY
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SOLDERS
FOR EVERY PURPOSE

The Gardiner Line of high quality solders offers a complete service—there is a solder especially made for each particular type of telephone work.

Some of the more important kinds of Gardiner Solder used in telephone installation and maintenance are:

Flux-filled solders, available in 1, 5 and 20-lb. spools.

Acid-Core Solder for iron lines and lead-ins. Made in various gauges and with a scientifically uniform flux. Standard gauge No. 11, about 1/8" diameter.

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Bar solders made in various alloys.

Bar Solder, Wiping Solder, Ingot Lead and Lead Sleeving are all made of the best materials and to meet most every need.

Low prices are assured because all Gardiner products are made by the most modern methods and in large volume. Insist on Gardiner. Your jobber will supply you.

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Established for over 39 years.

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more dignified stability. Now, that reputation is pretty well shot, in the eyes of a good many Congressmen. They are talking about the "same old Katzenjammer kids on the FCC."

Of course, it is easy to understand how, in the tense atmosphere which prevailed at St. Louis, there was a temptation to say things without careful reflection. But there is also a feeling in some quarters that there should be more evidence of cool-headedness on the part of the commission, as well as on the part of the responsible network organizations. Senator Wheeler of Montana, chairman of the Interstate Commerce Committee of the Senate, tried to hold back on investigation proposals such as the White resolution. It is not that Senator Wheeler is opposed to such an investigation but he feels that this is not the time for it. Other Senators feel differently.

There are even signs within administration circles that patience is growing short with the interminable FCC-radio row. The situation right now is such that if the administration were even to raise a little finger the White resolution, or something like it, would be immediately adopted. Even without administration acquiescence the support for an FCC investigation is growing in Congress.

Again there is strong pressure against disciplining an agency of the Federal government at this time of a national emergency. But the same argument goes for drastic disciplinary action by the FCC against both the radio and telephone industries at a period when the need for cooperation of those industries in the nation's defense effort is so vital.

* * *

The idea that this period of national emergency is not an opportune time for a disturbing or extensive investigation of the telephone industry is suggested in the reply brief of the AT&T, filed with the FCC last week. Of course, the Bell System is not resisting the investigation, but it would like to get it over with as quickly as possible. This is evidenced in the following paragraph from the "Conclusion" of the company's brief:

We realize and sympathize with the desire of the commission to expedite this case. The demands upon the time of respondents' personnel due to the national defense program are such that respondents are especially concerned to see that the time and effort necessary for this case be kept as low as possible. We think that the program we have suggested of stipulation of certain of

SECURITY PLUS SPEED
ON SPLICING JOBS

NICOPRESS SLEEVES and TOOLS

Via GraybaR

This NICOPRESS No. 51 Tool assures speedy, tight splices on copper, copper-weld and aluminum lines.

Splicing high tensile conductors has always been a slow, tedious job. Using *Nicopress* Sleeves and Tools, however, a simple, speedy splice is assured . . . one that will stand up to the full strength of the cable. For *Nicopress* equipment is especially designed to meet all the severe requirements of field work. It is thoroughly pre-tested under actual conditions.

A real saving in maintenance expense is effected, too, by this modern splicing method. In many cases it uses only one joint in place of the two normally required. In addition, it quite frequently does away with the need for new cable as the broken line can be pulled together sufficiently for the new splice to be quickly and easily applied.

Your local GRAYBAR Man will be glad to give you the complete story on *Nicopress*. Why not ask him to show you how it can be a real time and money-saver on *your* particular problems?

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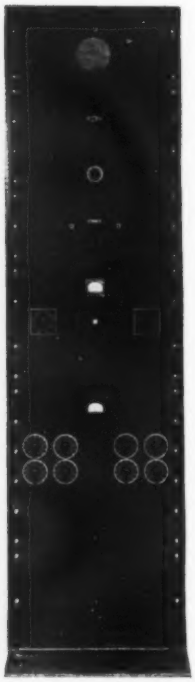
AN ANNOUNCEMENT TO INDEPENDENT TELEPHONY•

● Ten years ago telephone repeater equipment was not available to Independent Telephony, except upon an exhorbitant basis. But during this ten-year interval, Harding Telephone Engineering has developed The Self-compensating Telephone Repeater; The A.V.C. Repeater; The 100% Automatic Modulation-control for both A.M. and F.M. Radio Transmitters and also THE CORD-CIRCUIT TRANSMISSION BOOSTER, which may be connected across the ordinary cord-circuit, with nothing as accessory equipment excepting an additional key to operate the BOOSTER, in connections requiring amplification. Ordinarily the cord-circuit is used in the usual manner, without Booster. The Booster may also be used as a fixed Line-repeater in long toll or rural lines; or it may be used as a fixed terminal repeater, in such long lines.

● The ordinary Repeater, with its meticulous balancing nets, is considered one of the most difficult of all telephone instruments. Even in the case of dire need of transmission improvement, the contemplation of the use of such an expedient, in many cases would have admitted of quite some speculation and hesitancy, due to limited Plant facilities and Personnel. The thought of continuous performance with the attending maintenance might have been staggering. But Harding Equipment dispenses with all that difficulty of "balancing" and continual observation. There are no "balancing nets" involved.



● But that is all beside the point. Perhaps after all we have over-estimated the need of Independent Telephony, for Transmission Improvement? But those of you who are cumbered by Unloaded 22-gauge Cable; Iron wire; and long Rural and Toll lines having transmission equivalent under commercial standard, will find in The Harding Booster an Efficient and Economical alternative to changing from Iron to Copper and to loaded cable, in the matter of transmission improvement.

● ***The Instrument is priced at $250.00 F.O.B. Indianapolis, Indiana; with a guaranteed gain of not less than 10 decibels.***

HARDING TELEPHONE REPEATERS
INDIANAPOLIS, INDIANA

the basic facts bearing on the question of the value of the property and of determination of separation methods by the commission in advance will tend materially to these ends.

Another feature of the reply brief which probably will turn out to be of considerable importance to the Independent companies is the Bell System's proposal that the FCC should set forth its own ideas as to basic rules for the separation of interstate as distinguished from intrastate telephone property.

In the Pacific Telephone & Telegraph Co. case decided last February, the company proceeded to make its own separation on the basis of the so-called "board-to-board" analysis. The FCC criticized this formula, stating that it had never approved the "board-to-board" basis. The FCC also said that the company in that connection "should have used the method which would give results most informative to the commission."

Profiting by this example, the AT&T now puts the problem of finding the method "most informative" up to the FCC itself. The brief states:

> In these circumstances, it is appropriate, and we believe essential, that the commission prescribe in advance the separation method which it will approve and which it will consider "most informative" in the solution of the questions involved in these proceedings. By so doing both delay and waste will be avoided.

* * *

In its supplemental petition requesting the commission to make an investigation, on its own motion, into the rules and methods for separating and classifying property and expenses of telephone carriers between interstate and intrastate service, the possibility of some Independent companies being drawn into the proceeding is clearly seen. The Bell supplemental petition does not mention Independent companies by name, but the 12th paragraph of the petition is as follows:

> Petitioners believe that under the provisions of the Communications Act of 1934 this commission should, preliminary to prescribing methods and rules for separation, hold a hearing, of which notice should be given to all interstate telephone carriers subject to the act, to the state commissions and to the governor of any state in which there is no state commission having jurisdiction over telephone rates and services. Petitioners believe, however, that the conduct of any such hearing could be greatly expedited by prehearing conferences between the staffs of

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this commission, the state commissions and the companies. Petitioners would like to participate in such conferences and are ready to do so immediately.

So far, the Independent companies, individually or through the U. S. Independent Telephone Association, have shown no disposition toward being drawn into the AT&T toll rate investigation. However, if the FCC decides to grant the request of the Bell System, its study of separating and classifying interstate and intrastate service is quite likely to run into an important sideline of toll compensation.

Thus, while it might be more satisfactory for the Independent companies to work out their problems on toll compensation through direct negotiation with the Bell System, the FCC investigation may assume such proportions along this line that the Independent industry or parts of it may decide to be represented to the end that the position of the Independent industry and the interests of the Independent companies are presented to the commission. However, any decision along that line could be made only after we see what the FCC does about Bell's request for a preliminary investigation into separation methods.

* * *

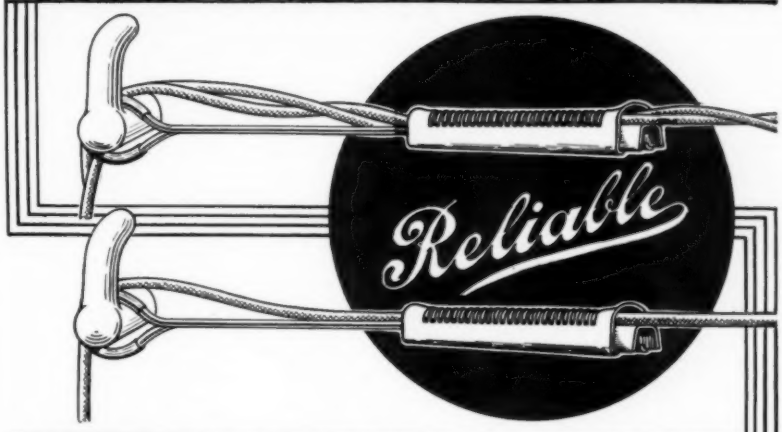
The remainder of the AT&T reply brief contains, under the heading of "Answers to Specific Questions" in the FCC's questionnaire, some valuable details on Bell's position with respect to accounting and valuation theory. It is obvious that the Bell System still considers the reproduction cost new theory of valuation an essential measure of fair value. In other words, Bell shows no intention of surrendering, without legal resistance, to the increasing New Deal demands that prudent investment or some similar variation of original cost should be adopted as the sole measure of valuation for rate-making purposes.

Bell considers that the 40-year-old rule laid down in Smith *v.* Ames is still the law of the land, on the basis of highest court decisions as late as 1939, despite contrary "discussions which have appeared from time to time in various professional periodicals and textbooks."

Another strong point made in the Bell reply brief was the plea that the reasonableness of rates should not be determined on the basis of temporary conditions—meaning the present abnormal volume of traffic and the imminence of increased

(Please turn to page 58)

"STANDARDIZE DEAD-END TIES"



DROP WIRE CLAMPS

- The type "P" drop wire clamp is an ideal device for attaching No. 17 B&S twisted pair or parallel drop wire to poles and buildings. It prolongs the life of the drop wire, permits free swinging at the tie, places all of the wear on the hardware and eliminates the sharp bends necessary with other methods.

This clamp is easily and quickly installed, making a very neat installation. Slack in drop wires can be taken up quickly without leaving any weak spots on the wire. Write for samples.

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You can buy T-C poles with complete confidence because they are made by a seasoned, energetic and able organization working with the finest pole-producing facilities.

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The SHOVEL that is
Solid Steel
in the Solar Plexus
The one spot where fighters can't take it is the solar plexus—the one spot where a shovel or spoon must take it is the shank and where the blade joins it. The blade, shank and socket of Sturd-E Solid Shank Shovels are forged in one piece from a solid bar of steel—no welds, seams or pieced together joints. This is the strongest construction known to shovel makers. To add yet more utility, the heavy 13-gauge blade is heat treated. For longer service life and greater value, specify Sturd-E Shovels made by The American Fork & Hoe Company, Cleveland, Ohio.
STURD E TOOLS
a TRUE TEMPER PRODUCT
One-piece Solid Shank, Socket Pattern Sturd-E Telegraph Shovel 22 inch handle socket, heat treated 13 gauge blade. XX grade hickory or ash handles sanded and waxed, in lengths from 6 to 12 ft.
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"Of What Value Has Telephone Service Been to Me?"

D. E. McGREGOR, president of the Nebraska Central Telephone Co., Gibbon, Neb., and former president of the Nebraska Telephone Association, recently concluded a subscribers' letter-writing contest which he considers to be unique in character. Last December he mailed out to his company's 1,200 subscribers a pamphlet offering prizes totaling $200, payable in telephone service, for the best letters on: "Of What Value Has Telephone Service Been to Me." Eight prizes were offered at each of the company's five exchanges at Ansley, Berwyn, Arcadia, Comstock, Gibbon and Shelton, with a $10 grand prize.

"This idea behind the offer," says Mr. McGregor, "was to induce each subscriber to stop and evaluate telephone service. While we received only 105 letters, we feel well satisfied because we are sure that a great many who did not take time to participate in the contest, or had misgivings as to their ability to write a prize-winning letter, were set to thinking on that subject.

"In a pamphlet sent to each subscriber we pointed out that the more telephones there are in service the more valuable the service is to each patron, and that we desired to pay them for assistance in convincing those who do not have telephones how valuable this service is to them.

"We told them we did not want an essay on the general value of telephone service, but rather information as to how it has helped in running a farm or a business; how it has assisted in making home life more pleasant and what aid it has been in cases of emergency.

"We stressed the fact that we wanted actual experiences. We pointed out that every family without telephone service is paying for it through lost jobs or lost time as well as the inconvenience and worry, and that we proposed to use the material they sent us for advertising purposes and for use in convincing neighbors and friends, who do not have telephones, what they are missing.

"No telephone manager can realize the intrinsic value of a telephone to those who use it, particularly in the rural areas. We can think of a number of uses illustrating the value of telephone service, but it was not until we read these letters from our subscribers that we fully understood the difference between our theorizing and the actual experiences of our customers. Here is the letter that received the grand prize; you can see what a wide use—necessary use—the telephone possesses":

Prize-Winning Letter

"Our telephone is one of our greatest helpers here on the farm. Saves time and money as well as being a great source of cheer and comfort to visit with friends and loved ones. We thank you for keeping it in such good condition, as any trouble reported is quickly adjusted, and we have kind and efficient service.

"I will mention a few of the many times it has been a great held to us: Trouble in gear of windmill, telephoned Weakley and trouble soon repaired. Pump didn't raise much water, telephoned Weakley; help came, pulled pump pipe, rusted holes in places, section cut out, new pipe put in—all ready to water stock, supply the house and irrigate the garden.

"Needed mowing machine repairs. Telephoned Turner, ordered from Grand Island; next day had them, saved going to town twice.

"Couldn't start car. Switch burned out. Telephoned Gibbon for new one, didn't have one. Called Amos at Shelton; yes, he had one. Sent it by mail. We installed it and could then go to Gibbon with cream and eggs.

"Best cow on place poisoned. Only a quick call on the telephone for Dr. Phillips, and his coming at once, saved her life.

"Our telephone rings in night—Red Oak is calling. Our daughter Grace's voice is heard saying: 'Donald and Doris have scarlet fever and I am coming down with it. Doctor says I must go to bed and stay there.' I reply: 'I'll come if Fern can't—both of us have had it and would not be afraid of it again.'

"Another time Grace calls over long distance to wish us Merry Christmas and Happy New Year. Who can place a value in dollars and cents in long distance calls when we hear and can talk with children or loved ones?

"Another time a relative died. Roads drifted too bad to get there. Calling on telephone was great comfort.

"Time saved at harvest and busy seasons by calling neighbors to exchange work used to be a greater help before so many had their telephones taken out on account of hard times. Our determination is:

" 'When crop failures make radio up-keep and telephone rent too much to meet, let radio rest, but we keep the telephone through winter cold or summer heat. Let me live in the house by the side of the road and be a friend to

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man. Yes, you may use our telephone, too.'

"An over-worked truck driver, too tired to drive, went into ditch north of us. Cattle and hogs spilled out and ran loose over the countryside; only few injured, driver not seriously hurt. A little after midnight he walked to our neighbor's house to ask where nearest telephone was. That man used his car to take him to Geo. Myers on the 37 line, as they disliked to bother *us young folks* at that time of night. But, they *could not* get Central (privately owned line) so drove to our house and the first ring *went through* to central office and Tracel Power sent another truck out with help to gather up the loose stock.

"Chas. Day's boy thrown from horse, unconscious for some time. Day finally came in middle of night and telephoned for doctor from our house.

"Ravenna man came to get his girl friend on Friday P.M. who taught school near us. He ran out of gas and was glad to call at our house and telephone his friends at Ravenna to bring him some gas. Paid us the toll charge and we turned it over to the company.

"A pale, trembling boy knocked on our door saying: 'May I use your telephone, we had a car accident little way north.' 'Certainly, come in.' 'Hello Mom, well—I—we — had an accident and car went into ditch. If it hadn't been a new, late model car suppose we would all have been killed.' His mother asked him where he was; he turned to ask me, then to his mother over telephone: 'A little ways north of Casper Walker's, about five miles north of town.' Dad obtained someone's car and was out to the rescue in short time.

"Oh, the radio is entertaining,
Electricity also has its charm,
But for day or night usefulness,
We keep a telephone on the farm."

"I wish I could remember how many toll charges have been collected by us at this telephone—but I never kept a count. I know a number have been made to Mr. Henline at Kearney, as well as several other Kearney people.

"One neighbor girl obtained a position with a business firm because they called here and Casper went horseback to ask if she could take it and telephoned her reply to them—'Yes.'

"One winter, Guy Wilcox, our mail carrier, had been out all day trying to make his route. After dark his wife anxiously called to know if we had seen him. We had not, but kept watch and as we saw his headlights where men were scooping their way through the deep snow we let her know, and it was a joy to her to know he would soon be home (as road from here into Gibbon was opened).

"Yes, we value our telephone and feel we could not run our farm without it."

Sincerely,
MRS. ANGIE WALKER

▼ ▼

North Dakota Convention Scheduled for June

The North Dakota Telephone Association will hold its 35th annual convention in the Leland-Parker Hotel, Minot, June 11 and 12, announces Secretary-Treasurer A. J. McInnes.

Improved glass makes insulators more durable

IMPROVED glass in Armstrong's Whitall Tatum Glass Insulators has resulted in greater durability. Under test—and in actual use—these rugged insulators have proved *stronger than their supporting pins.* The upper illustration shows cut pieces of glass being examined under the microscope in Armstrong's research laboratory—assuring the highest possible quality of glass in "WT" Insulators. Ask your jobber or distributor for complete information, samples, and prices. Or write to Armstrong Cork Company, Glass Insulators Department, 295 Fifth Avenue, New York City.

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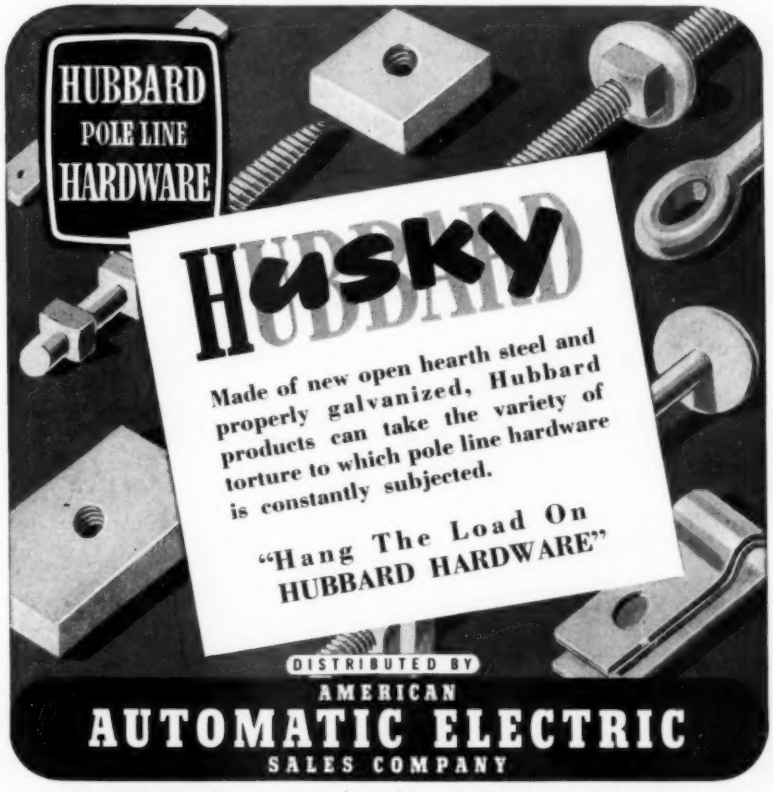
MADE BY ARMSTRONG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POLE LINE
HARDWARE
Husky
Made of new open hearth steel and properly galvanized, Hubbard products can take the variety of torture to which pole line hardware is constantly subjected.
"Hang The Load On HUBBARD HARDWARE"
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BRANCH WAREHOUSES AT DALLAS, KANSAS CITY, LOS ANGELES, RICHMOND (VA.) AND SAN FRANCISCO

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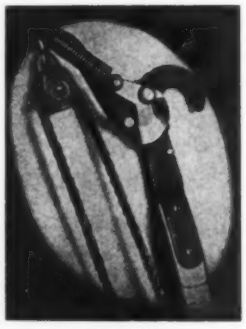
The BARTLETT POLE SAW

HERE is an appropriate companion tool for Bartlett's No. 1-W Tree Trimmer . . .

A saw operated from the ground which has a 16-inch blade with 7 teeth per inch and cuts on down strokes. Easily saws a 5 inch limb in a few seconds.

Pole—supplied in 8- to 16-foot lengths —one-piece pole or with sectional pole if desired, carefully shellacked to prevent absorption of moisture.

In all—Bartlett Pole Saw is a durable tool for heavy line clearing duty.



No. 1-W

NEW LINE CLEARING SAW makes fast-clean-easy cuts and is easy to file.
No. 124B-24"
Powerful, light-weight forged blade and hook. two-hand pruner. Drop-
No. 777-26"

Maintain good public relations by using Bartlett Black Antiseptic Tree Paint for all tree wounds. Affords long-lasting protection against decay, promotes healing. Non-injurious to cambium layer.

ASK FOR NEW CATALOG NO. 27

BARTLETT MFG. CO., 3051 E. Grand Blvd. Detroit, Mich.

BOOK REVIEW

SOLDERING FOR WORKSHOP, FARM AND HOME, by John Bonert; 111 pages, 28 illustrations. Published by Orange Judd Publishing Co., Inc., New York City.

While this book covers soldering in general, it also includes all information necessary for the application of this often difficult task to general telephone work. The author does not assume that soldering can be learned by merely reading this book, but with practice and the information imparted, the conscientious student will undoubtedly be delighted with his progress.

While the book is primarily intended for the student, it also contains numerous ideas which will prove of great benefit to the experienced man. The numerous proved ideas are presented in simple language and no scientific terms or other complications for the practical man have been used.

The first chapter covers soft soldering, the numerous fluxes and how they should be used. The approved method of tinning and the care of soldering coppers is explained in detail. One chapter is devoted to metals. The melting temperatures of each are indicated and it is explained just how they are combined to form solder.

Another chapter consists of ten easy lessons in soldering. One lesson, "Soldering wire splices," will be found especially interesting and helpful to all telephone men. Soldering on lead is carefully explained and closing a seam in a split cable sleeve is made easy when approached in an approved manner.

Information on soldering and sweating with a torch will be especially helpful for those who must at some time or another solder such joints as a No. 12 copper wire on a ground rod or a heavy copper lug on a battery lead.

Hard soldering or brazing is explained in one short chapter. The closing chapter is devoted to shop projects and contains valuable suggestions which may be easily applied by practical telephone men in their daily work. Of these numerous ideas, how to construct a soldering copper holder and a soldering pad will be found especially useful as well as simple to construct.

It is a well known fact that unsoldered or improperly-soldered connections are responsible for a large percentage of telephone troubles. Even though wire may be well soldered, if the wrong flux is used trouble will surely result. The proper use of this book and a little study will prevent many costly errors.

This soldering information fills a long-felt need in the Independent telephone industry. It is believed that if telephone companies will send a copy of this book to each of their switch line companies, considerable trouble and service interruptions may be avoided.

The book should also be available at public libraries for ready use by those who otherwise could not get the information it contains. "With the present demand for skilled men in every craft concerned with defense preparedness," says the author, "this book will give the boy or young man the advantage of an added accomplishment."

This book on soldering may be purchased through TELEPHONY at $1.25 per copy.

▼ ▼

Map, Directory Prepared by Pennsylvania Association

The Pennsylvania Independent Telephone Association is distributing to its members a revised edition of its telephone map of the state. Produced after several months of effort, it is believed to be the most comprehensive, accurate and attractive map of its kind, reports Executive Secretary H. M. Stewart.

To supplement the new map, the association under Mr. Stewart's direction has prepared a "Directory of Independent Telephony in Pennsylvania." The 24-page booklet contains an alphabetical listing of Independent telephone companies in the state, with the home office address and the operating head of each company. Information incidental to the map is also included, together with some interesting comparisons and a brief list of some of the major contributions to the art of telephony by the Independent group.

▼ ▼

Cincinnati & Suburban Bell Plans Offering of Stock

Directors of the Cincinnati & Suburban Bell Telephone Co. have adopted resolutions authorizing action to be taken in connection with the offering of additional common capital shares of the company at par ($50 per share) to shareholders of record May 12, 1941, on the basis of one share for each ten shares held, and to issue subscription warrants to shareholders. A registration statement covering the proposed offering is being filed with the Securities & Exchange Commission.

Subject to the registration statement becoming effective and to other conditions, according to A. J. Allen, president, it is anticipated that warrants representing subscription rights will be distributed about May 29, 1941, with subscription privileges to expire on July 2, 1941.

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KEYSTONE STATE HOLDS *Successful Meeting*

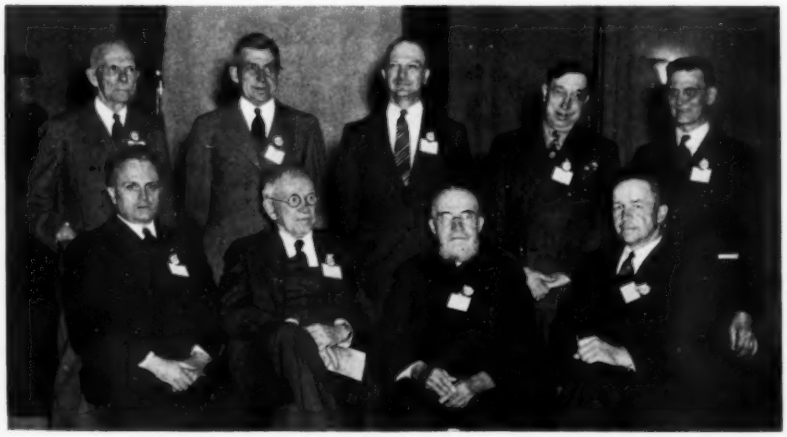
By R. C. RENO

While industry's cooperation in national defense program was of major interest at Pennsylvania convention, most of the program was devoted to solution of everyday problems confronting telephone men and women under today's changing conditions

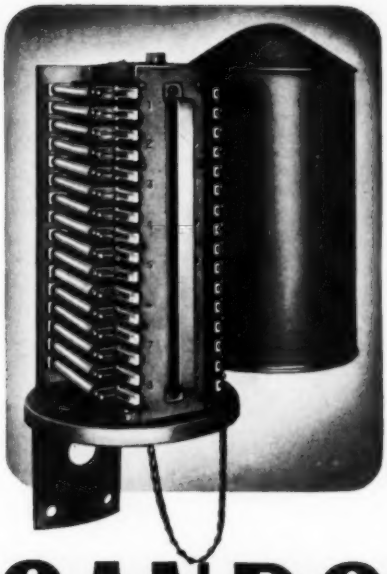
A COMPLETE and well-rounded program covering the day-to-day problems of the telephone industry was presented at the 39th annual convention of the Pennsylvania Independent Telephone Association which was held May 15, 16 and 17 at Hotel Penn Alto, Altoona.

That there is a growing interest in and value to the work of the Pennsylvania association in solving the problems confronting the telephone business was evidenced by the fact that by noon of the first day 150 had registered for the meeting, and the convention hall was packed for the first session. Attendance at the gathering totaled more than 400.

While the effect of the national defense program on the telephone business was the major point of interest at the convention, most of the program was devoted to discussions of the every-day problems involved in rendering complete and efficient telephone service to the nation.



Directors of Pennsylvania association photographed at recent convention (left to right, seated): A. O. BLACK, Butler; K. B. SCHOTTE, Kittanning; H. R. MILLER, Myerstown; AMES E. BROWN, West Springfield. Standing: JOHN H. WRIGHT, Jamestown, N. Y.; HARRY M. ENGH, Erie; H. M. STEWART, Harrisburg, executive secretary; C. E. EABY, Ephrata, and M. W. SHOOP, Vandergrift. (Three directors were unable to be present: C. E. BENNETT, Wellsboro; G. B. RUDY, York, and J. F. STOCKWELL, Philadelphia.)



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TYPE 35 PROTECTED CABLE TERMINAL

For 11, 16, and 26 Pair Cables

Name the features that telephone men want most in a protected terminal. You'll get them all in a Type 35—including the SANDS self grounding and automatic resetting discharge block.

This block (Sands Type 2105) is standard on all SANDS protective equipment. With it, protection lapses are banished, maintenance costs are cut.

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SOMETHING'S HAPPENED -INSIDE!

There's something new under the sun every telephone man ought to know about!

See Page 59

Try this on your trimmer • •

TIPS TREE TRIMMERS

can take it - - -

It takes a good hefty tree trimmer to cut a 1¼" seasoned insulator pin in two. You get that extra "heft" in a Tips rope operated tree trimmer—you also get a means for attaching a Tips pruning saw for the big limbs, and a means for splicing on additional pole lengths.

Poles are solid spruce, treated with three coats of preservative and voltage tested.

Rope or lever operated types available.

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CENTRALIA MISSOURI

As at practically all other recent state conventions, telephone operating men of Pennsylvania expressed anxiety over the increasing difficulty being experienced in getting equipment and supplies for the expansion of their plants in order to take care of the growing demand for local exchange and toll service.

They all realize it is necessary for the government to ration strategic metals to key defense industries, including the telephone industry; however, they reason that communication forms the backbone of the defense program. Already great demands are being made on the industry and it is the opinion of telephone men that the government should see to it that they receive sufficient equipment with which to do the job that is demanded of them.

While there is no serious crisis in getting equipment at the present time, deliveries are slowing up considerably, and unless the industry is placed in a preferred priority position for strategic metals, the operating companies predict that their ability to handle the increasing burdens placed on their systems will be seriously jeopardized.

The annual banquet and dance were held the evening of May 16 and more than 450 jammed the banquet hall to enjoy a most entertaining program.

The first session of the convention was presided over by Executive Secretary H. M. Stewart and was opened with the invocation by Ralph E. Forsythe of Butler. The convention delegates were welcomed to Altoona by Stanley Ruth, manager of the local chamber of commerce. Harry J. Huether of Erie responded to Mr. Ruth's address.

Mr. Stewart then introduced President Harry M. Engh, of Erie, who gave his annual report on the activities and affairs of the association. Mr. Engh traced the work of the association during the past year and commended the organization's staff for having done a remarkable job in serving member companies. Association activities, he said, had resulted in an all-time high membership, placing the organization in a sound financial condition. Mr. Engh's address will appear in TELEPHONY next week.

Addresses by Carl D. Brorein, Tampa, Fla., president of the United States Independent Telephone Association, and by J. Warren Safford, past president of the Ohio Independent Telephone Association, were scheduled on the program. However,

This threesome failed to escape Cameraman Ray Blain at the Pennsylvania convention (left to right): LOUIS PITCHER of Chicago; HARRY M. ENGH of Erie, president of the Pennsylvania association, and H. M. STEWART of Harrisburg, executive secretary.

Among out-of-state visitors welcomed at Pennsylvania convention were (left to right): GEORGE R. FOLDS of Chicago, board chairman of Cook Electric Co.; EUGENE A. REINKE of Rochester, N. Y., Stromberg-Carlson's sales manager, and ARCH MACKINNON of Albany, secretary of the New York State Telephone Association.

due to national defense activities in their companies' territories, it was impossible for the speakers to attend the convention.

Louis Pitcher, Chicago, executive vice president of the national association, addressed the convention on "The Industry from a National Standpoint."

Mr. Pitcher read a message from Mr. Brorein which he had received over the telephone in which Mr. Brorein stated that "telephone communications, in bringing together all sections of the country, had played a big part in the progress and development of our democracy and that the industry had pledged itself to meet the ever-increasing demands made of it in connection with the national defense program."

However, Mr. Brorein pointed out that the encroachment on business by governmental bureaus, if not retarded, will place a serious handicap on all industry, including the telephone business. He referred to the present FCC inquiry into long distance rates and stated that in his

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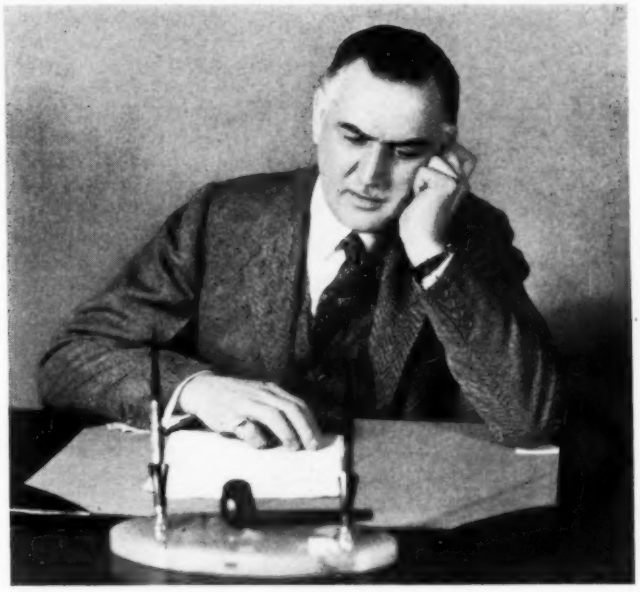
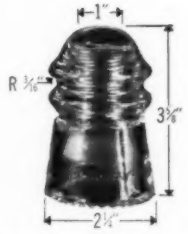
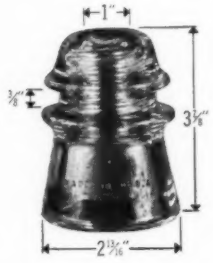




General purpose Hemingray Number 9. Has drip points on petticoat to accelerate moisture run-off.



Hemingray Number 16 has square groove to help insure that the wire will not slip down.

Hemingray Insulator Number 42, with its long leakage path keeps rural "toll" lines trouble-free.

How HEMINGRAY INSULATORS

Help with Your Tax Problems

THE tough part about taxes is that money must be found to pay them. One way to find the money is to reduce operating costs. In that, Hemingray Insulators *definitely* help.

Here's actual proof. A prominent utility company (name on request) reports "we have thousands of Hemingrays that have seen 50 years of active, continual service."

The secret of Hemingray long life lies, first, in the special glass "batch-mix" and second, in the unique Owens-Illinois straight-line production methods where each step in making Hemingrays double-checks the one before it. Result! Insulators free of voids, internal strains and stresses—so strong that they'll outlast your poles, hardware and crossarms. No matter what sudden changes of temperature, no matter how much rain, snow or sleet they encounter, their strength is unimpaired.

Reasonable in first cost and *always* sold through your nearby jobber—the man who lives with *your* needs through the years. In those rare cases where you must have data, etc., to meet "special" needs, please write Owens-Illinois, Hemingray Division, Muncie, Indiana.

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Write for new bulletin.

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- **BATTERY ELIMINATORS:** with constant voltage output, for PAX and PBX, with or without sub-cycle ringer.
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opinion the investigation comes at a most critical stage when telephone companies are spending much money and time in meeting their responsibilities in the defense program.

Mr. Pitcher outlined the part the industry is playing in the preparedness program and stated that the industry is well represented on all defense communications committees, which are responsible for the coordination of all communications systems and lines.

The speaker emphasized the importance of maintaining a constant flow of materials to operating companies so that they can keep their systems in step with the increasing service demands. He commented on the industry's need for a preferred priority position for strategic metals so that manufacturers can continue to produce equipment for the operating companies, whose services are so important in the nation's overall communications system.

A most interesting and inspiring address was given by Dr. Andrew S. Bashore of Harrisburg. Dr. Bashore in a forceful way emphasized the individual's advantages under a democratic form of government and told his listeners that every citizen of this country should be ready and willing to make every sacrifice to protect our form of government, which is the only democratic form of government left in the world.

Group Conferences Held

The second day of the convention, May 16, was given over to group conferences — accounting, commercial, plant and traffic. E. H. Dillon of Erie was chairman of the accounting conference, at which discussions were held on proper accounting methods, as well as the requirements to be met in keeping perpetual inventory or continuing property records as prescribed by various systems of accounts.

Mr. Dillon delivered an interesting address on "Modern Distribution Methods Applied to Telephone Accounting." He explained five methods of mechanical distribution and recommended that the so-called "unit media" method, where each individual source entry is recorded on a separate unit document, as the most practical in telephone accounting. The five machine distribution methods, which Dr. Dillon described and compared to manual methods, have been devised by the Burroughs Adding Machine Co., which has issued a booklet entitled "Statistical Tabulation — Methods and Equipment."

Attendants at registration desk. Seated: MILDRED WESLEY, Erie; MISS M. E. CUNNINGHAM, Harrisburg, capable secretary of the Pennsylvania association. Standing: ROSALIE SHIBER, Johnstown; ROSE McMILLAN and MRS. GEORGIA ENGLISH of Harrisburg, both of the association's office.

Henry W. Rasher of Harrisburg discussed "Class D Bookkeeping Systems" and devoted most of his address to the "Hinman System of Telephone Bookkeeping" (TELEPHONY, July 20 and 27, 1940). Representatives of many of the smaller Independent companies attended the accounting conference and Mr. Rasher's remarks drew a number of comments and questions from the floor.

The commercial conference was led by John C. Herbert of York Harry J. Huether of Erie presented a most interesting address entitled "Public Relations." Defining his subject, Mr. Huether stated that public relations simply means good will; it is the reaction of the public, our subscribers, toward the company; our relations with the public.

He stated that public relations is not a conscious thing which can be put into a bin with a label. It cannot be kept under a counter or in a desk drawer for use when it is needed. Public relations is an effect —it is a result. Bad public relations is the result of not doing a good service job while good public relations is a result of doing a good telephone operations job.

Mr. Huether told his listeners that they must render service in such a way that good public relations will be a by-product—a by-product as important as the service itself—and that they must have that by-product coming out of every contact with the public.

He pointed out that employes who conduct the telephone company's day-to-day relations with the public have the power to bring about better public relations and he suggested ways in which employes can conduct

their duties with beneficial results to their company.

Mr. Huether's address will be published in a future issue of TELEPHONY.

"Effective Collection Practices" was the subject of an address by Miss Bertha Brossman of Ephrata. She reviewed different collection methods and stated that her company had found that uncollectibles were reduced to a minimum with advance billing and the application of penalties for deferred payments.

Miss Brossman stated that while billing subscribers who are in arrears, which is quite a new collection practice, necessitated toll service denial in the middle of the month and denial of exchange service five days after the end of the month (at which time a restoration charge is applied), her company had had good results with this method.

Traffic Conference Well Attended

The traffic conference, presided over by G. E. Slusher, of Erie, was well attended and several interesting addresses were presented by traffic supervisors and chief operators of various operating companies.

These sales representatives were comparing notes at Pennsylvania convention when TELEPHONY'S technical editor, RAY BLAIN, came along with h's camera (left to right): BOB WOLF of Cleveland, Ohio, National Telephone Supply Co.; C. L. CLARK of Pittsburgh, A. B. Chance Co., and NELSON STOKER of St. Louis, Mo., James R. Kearney Corp.

This group of employes of Peoples Telephone Corp., Butler, sang a number of songs at convention banquet. Front row (left to right): ARLENE SHAKELY, GERTRUDE MORTLAND and DOROTHY ROUDYBUSH. Back row: DUWAYNE BAIRD, LYNN CLAYPOOLE and WELLES BLACK.

Miss Teresa Ferraro of Vandergrift read an address prepared by Miss Katherine Cassidy, also of Vandergrift, on "Why Have a Convention?" Miss Cassidy, who was unable to attend the convention in person, emphasized the fact that it is highly important for every department of a telephone company to familiarize itself with the workings of every other department. Such a practice, she said, creates splendid teamwork among all employes, which results in the rendition of better service to the public.

She declared that one of the main values of conventions is that employes of all departments are allowed to get together to exchange ideas, thus promoting a greater amount of teamwork and greater efficiency in handling their work.

Miss Myrtle Anderson of Oil City gave an interesting address on switchboard bulletins and related records. In a discussion on "Dealing With Customers" Miss Eva L. Peecock of Kittanning stated that to make a good impression with subcribers, operators must show customers that they have a genuine interest in serving them.

"Let your attitude and your personality show themselves not only by what you do about the customer's request, but by what you say and by how you say it," she suggested. "Approach each call with an individual interest in it and a desire to be of assistance to the customer. Try to see the customer's point of view and evaluate the situation from his standpoint and cultivate an easy, natural manner at all times. Use good English and a good choice of words, but do not let your manner become stilted or unnaturally formal."

Miss Gertrude Kamler of Johnstown gave a detailed explanation and instructions as to the methods used in handling special classes of calls.

Prefacing her instructions, Miss Kamler emphasized the importance of loyalty among traffic employes and between employes and their company as a vital factor in rendering efficient service to the public. She stated that every operator must possess a keen spirit of loyalty to her employer and that one requisite of loyalty is complete knowledge and understanding of the work she is to do. With this thought in mind Miss Kamler discussed modern methods

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The MARK of QUALITY
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This
HANDSET
Wall Telephone
Only $11.75
plus your old magneto set
Try to top this value anywhere! A rebuilt and modernized "compact type" magneto telephone, newly equipped with Monophone handset and anti-sidetone circuit. If you have no telephones to trade, write for cash prices.
This instrument carries the AR tag—your guarantee of superlative workmanship and long life. Autelco rebuilding service is one of the most popular of the Automatic Electric services for independent companies. For full information, send for circular 1640-B.
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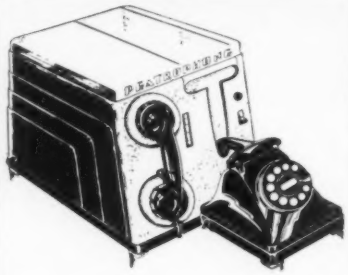

The Peatrophone

"The Mechanical Secretary."

Write us today for our leasing plan which makes Peatrophone service obtainable by your subscribers for a small monthly rental without investment by you.

Peatrophone Corporation

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CUT SERVICE COSTS WITH

RAY-O-VAC

LONG-LASTING BATTERIES

Get double savings with Ray-O-Vac Telephone Batteries ... 1. Fewer Service Calls. 2. Less frequent Battery Replacements. Start now to standardize on Ray-O-Vac Batteries

RAY-O-VAC COMPANY

MADISON, WISCONSIN

DANIEL SEITZ of York, Pa., demonstrated modern cable testing at the plant conference. Mr. Seitz is author of a series of articles for TELEPHONY on "Improved Maintenance Practices," first instalment of which appears in this issue.

of handling several types of special calls.

A series of movie films on "The Story of a Mistake," illustrating proper operating practices, was shown by James E. Twaddle of Altoona. The last feature on the traffic conference program was an address by Joseph M. Lehan of Erie, who described the operations of the aircraft warning service which is being formulated by the government in connection with the national defense program.

During the army maneuvers in New York state last fall, a company associated with Mr. Lehan's company played an important part in the aircraft warning system operated in connection with those maneuvers. He traced the activities of telephone companies in furnishing facilities for reporting the approach of "enemy" aircraft to army headquarters, which in turn directed combat planes to drive off the "raiding" aircraft.

He stated that during the maneuvers the commercial telephone companies carried out their functions efficiently and said that in the present defense program the telephone industry is cooperating wholeheartedly by placing its entire resources — material, mental and physical — at the disposal of the country to be used as circumstances require.

Demonstrations Are Feature of Plant Conference

Those attending the annual plant conference at the Pennsylvania convention were presented with an interesting as well as instructive program, for which Plant Chairman John C. Hull and the members of his committee received many words of commendation. There is no doubt that many benefits are to be derived from conferences of this nature when conducted in connection with actual demonstrations of approved methods by qualified workmen.

The conference opened with the showing of a sound motion picture, "The Right and Wrong Way, or Some Pointers on Safety," courtesy of the Bell Telephone Co. of Pennsylvania, and a color movie, "A Study in Pole Preservation and Maintenance," courtesy Naugle Pole & Tie Corp. Both of these pictures were instructive and entertaining. Following the pictures, a very interesting talk, illustrated with slides, on "Recent Developments in Lead Sheath for Cables" was given by Mr. H. S. Suppers of the John A. Roebling's Sons Co.

A demonstration of the "bliffy-sniffer," conducted by Daniel Seitz, Cable Superintendent of the York Telephone & Telegraph Co., proved most interesting. A low strength trouble tone was placed on a conductor in a short length of cable and, by the use of a pick-up coil made extra sensitive by a vacuum tube amplifier, the pair was identified at an opening in the cable without puncturing the insulation. The audience listened to the tone on a loud speaker.

Next came a most interesting demonstration on modern wire splicing methods and cable lashing with spinners, conducted by Mr. G. E. Twigg, general plant superintendent of the United Telephone Co. of Pennsylvania. Considerable interest was evidenced in both of these subjects by all visiting plant men.

An honest, straightforward explanation of the use of gasoline-operated hammers and drills, and also gasoline-operated pumps and emergency generators was presented by Mr. K. B. Schotte, Jr., general plant manager of the Kittanning Telephone Co. The actual experience of this company indicates that these tools may be used to advantage on general telephone work everywhere.

The final demonstration covering the use of desiccant for drying cable, and the repair of sheath openings by the arc welding method, was conducted by Elmer R. Stebb and Wilbert C. Dreschler, foreman and plant man, respectively, of the Keystone Telephone Co. of Philadelphia. First, a sensitive voltmeter was connected to the bunched pairs of a short length of cable. A sheath opening about eight inches in length was made with a special slitting tool and nearly half a pint of water poured into the cable. The voltmeter soon registered a dead short.

The cable was then cut around at each end of the opening with a chipping knife and the section of sheath completely removed. A cloth envelope was next placed around the wet conductors and tied to the sheath at both ends. Desiccant was then poured into the envelope and worked thoroughly into the conductors at the wet spot. In just seven minutes the voltmeter showed the cable clear.

A demonstration of lashing cable with spinners was given at plant conference. Left to right: G. E. TWIGG, JOHN SEIMONS and RUSS W. MILLER, all of Harrisburg.

Demonstration of drying cable joints with desiccant at plant conference. Foreground (left to right): W. C. DRESCHLER and ELMER R. STEBB of Philadelphia.

ENJOY THESE
NAUGLE
ADVANTAGES

STABILITY

Natural taper means low center of gravity, better anchorage.

STRONG POLES

Naugle Cedars have ample strength for long time maximum loading.

CLEAN POLES

Freedom from sticky substances makes Naugle Cedars easy to climb.

PROMPT SHIPMENT

Naugle always has ample stocks ready for quick delivery.

PERMANENCE

A Naugle Pentrex-treated cedar pole is good for 30 to 40 years' service. The first cost is the last.

NATURE PLUS NAUGLE!

This combination is your assurance of maximum pole value . . . lightness combined with strength . . . resistance to insects and decay . . . permanence . . . low center of gravity . . . stability . . . intelligent attention to all your requirements . . . large stocks ready for quick shipment.

NAUGLE POLE & TIE CORP.

MINNEAPOLIS MINNESOTA

XUM

Reasons enough for specifying . . .

CHANCE STEEL EXPANDING ANCHORS

- Equal power distribution
- Extra area in solid earth
- No disconnecting arms
- No breakage
- Destructible nut retainer
- Easy installation
- Easy expansion

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CENTRALIA MISSOURI

AND DON'T OVERLOOK THE ADVANTAGES OF

SUB-CYCLE

The MODERN Method of Ringing

No Moving Parts
Nothing to Adjust
Economical Operation
Quiet

Six Models for Loads Ranging from the Small PBX to the large Central Office.

Prices $32.00 to $93.50
Also Pulsators

Write for Literature

LORAIN PRODUCTS CORPORATION
LORAIN, OHIO
Sold by Leading Distributors

The conductors were then tightly wrapped for the complete length of the opening with varnished cambric, and the sheath section replaced and formed with a special tool. The seams were all welded with the aid of the carbon arc powered from a storage battery and the use of stearine core solder. The seams were smoothed down with a file and emery paper so that the actual location of the opening could not be detected.

Excessive bending of the cable at this point failed to develop any defects. The demonstration was followed with great interest by the visiting plant men, who praised Mr. Dreschler for the mastery he showed of the art of cable splicing.

Mr. Ray Blain, technical editor of TELEPHONY, attended the plant conference and assisted with the question and answer period following the demonstrations.

Open Forum at Closing Session

The last session of the convention on Saturday morning, May 17, was given over to an open forum on various phases of the telephone business.

Housing unattended dial exchanges was discussed by J. K. Stoltzfus of Birdsboro, R. F. McKelvy of Gibsonia and R. J. Horne of Marianna. Subscribers' choice of telephone instruments was the subject assigned to K. B. Schotte of Kittanning, while G. F. Evert of Ridgeway presented a program for preparing magneto exchanges for conversion.

W. A. Black, L. E. Claypoole, S. A. Miles, E. H. Plaisted, Herman Stutz and D. T. Winner, all of Butler, told of their experiences in repairing plant damage caused by a recent severe sleet storm.

A discussion on rural subscriber development was led by C. E. Eaby of Ephrata. K. L. Schroeder of Elizabethville and R. A. Decker of Muncy presented suggestions on the collection of old accounts. Obtaining rate increases in small exchanges was discussed by L. E. Whiting of Meadville and W. C. Nave of Breezewood.

Mr. Stoltzfus gave an interesting dissertation on "Through Dialing Between Exchanges."

The Ladies' Entertainment Committee arranged an enjoyable program for the women who attended the convention. A luncheon was held at an Altoona country club on May 16, followed by a sight-seeing tour of the scenic areas around the city. The entertainment committee was composed of Mrs. K. B. Schotte, Kittanning, chairman; Mrs. H. M. Stewart, Harrisburg, vice chairman; Mrs. Ames E. Brown, West Springfield, Miss M. E. Cunningham, Harrisburg, and Mrs. Donald E. Lee, Chambersburg.

In the Nation's Capital

(Concluded from page 47)

costs and uncertain economic conditions in the future. The Bell System estimates that it would take about one year and a half and a million dollars for it to make a reproduction cost estimate of the property owned by the long lines department. The brief states that the period might be shorter if "times were normal with no defense program under way."

* * *

The Keystone-New Jersey Bell merger hearings in Philadelphia closed down temporarily last week after two protesting interveners, Sears Roebuck & Co. and a business men's association, requested further hearings for purposes of introducing their own evidence. If the commission grants such hearings, the proceeding may run well into June before the telephone companies complete their rebuttal testimony. In any event, it looks as if the decision of the FCC *en banc* on this merger petition is not likely to be along until the summer is pretty well advanced.

▼ ▼

TELEPHONY Story Illustrated In Sunday Feature Section

Cartoonist Harry Keys, of the Columbus, Ohio, *Sunday Dispatch*, recently drew on material appearing in TELEPHONY for an illustration in his "Buckeye Basket" series. Subject of Mr. Keys' cartoon was the "Best Story of the Week" which appeared in TELEPHONY for March 22.

The story told of a retiring cable splicer who was asked if he wouldn't miss the routine he had followed for so many years. "Oh no," he said, "I am going to build a manhole out in the back yard and every morning at the usual time of getting up I will go out and open the manhole, look into it and say 'PHOOEY'—and go back to bed."

XUM

Long Spans in Rural Lines

(Continued from page 21)

For light loading areas, the ratio of unloaded tension to breaking strength is one-fourth at zero degrees F. Complete sag tables may be obtained from manufacturers of this new wire. The following is given as an example of maximum span length in heavy, medium and light loading areas at 70° F.:

In a heavy loading area a 350-foot span of high tensile steel wire of 1,213 pounds' breaking strength should have 37.5 inches of sag; in a medium loading area, a 450-foot span should have 48 inches of sag, and in a light loading area a 500-foot span must have a sag of 54.5 inches.

High tensile strength wire must always be spliced with extreme care in order that there will be no weak points in the line. Galvanized steel compression type sleeves of suitable lengths are recommended. These sleeves and the necessary tools for compressing or rolling them in the field may be purchased at a small cost from various manufacturers.

In long span construction, the line wire should be tied on the insulator with extreme care. This is especially necessary for spans over 200 feet in length to prevent the wire from chafing at the insulators. Special tie wire designed for this purpose should be used as it permits wrapping tightly around the insulator and line wire in the approved manner. The simple horseshoe type tie may be used for spans of 200 feet. However, for spans of greater length, some form of reinforcement of the line wire at the supports is considered necessary to prevent trouble due to the concentration of vibration at these points.

The so-called armored tie is recommended for this purpose as it tends to stiffen the line wire in the groove of the insulator and provide a better distribution of stresses at the support. The T-tie is another special form which can also be used to advantage on extra long span construction. Detailed instructions and drawings which indicate clearly how these ties are constructed can be obtained from the manufacturer of this high tensile strength steel wire.

Due to the necessary high strains, dead-end fixtures should be of a type that will develop the breaking strength of the line wire. One very good arrangement may be made up with strain insulators secured to eyebolts with special clevices.

Another type of construction consists of a regular line insulator which mounts on a steel bracket which, in turn, is attached to the pole by a through bolt and a lag screw. Galvanized steel compression type dead-end sleeves are recommended to fasten the line wire to the dead-end insulator.

Regular wood brackets may be used on intermediate poles though special reinforcement must be used when extra strain is encountered. The brackets may be wired to the pole or a special cleat may be used to provide the extra holding power. Crossarms may be used with long span construction when considered necessary. A two-pin crossarm is also often used in lieu of wood brackets.

High tensile strength wire is strung in practically the same manner as ordinary BB wire except for the fact that the provision of proper sag is more carefully observed. The temperature should be measured on the job with a good thermometer and these readings taken at frequent intervals. It is generally best not to pull more than a one-half mile length at one time and all wires of the lead should be of equal tension. The wire should always be pulled to a greater tension than required and then slacked off to the specified tension.

The proper sag may be obtained by the sight method using targets made of lath which should be located on two poles near the center of the pull. The oscillating method may also be used to determine the proper wire tension. When a span of wire is struck a blow, it will oscillate at a frequency depending on its tension.

A count of these oscillations for a period of 15 seconds and reference to a table will indicate the sag in the span. For example, a two-inch sag will oscillate 37 times in a 15-second period and a 68-inch sag only six times.

There is also now available a small strain dynamometer which may be purchased at a reasonable price.

SOMETHING'S HAPPENED -INSIDE!

Step lively, Mister! The Little Woman isn't fooling! Burgess research engineers weren't fooling, either, when they tossed *internal short circuits* right out of the picture by adopting Goodyear's famous Pliofilm for the *new* Burgess Twin-Six Telephone Batteries!

Pliofilm is science's wonder-material — acid-proof—air-tight—even vapor-tight. It guards against internal "shorts"—turns all previous concepts of Twin-Six Telephone Battery construction upside down! And remember — the "Sealed-in-Pliofilm" Twin-Six is exclusive with Burgess!

SEE FOR YOURSELF!

We'll send you, without charge, an actual Twin-Six Battery, cut away for your inspection. Right at your desk . . . see what "Sealed-in-Pliofilm" means . . . how sensationally it *improves* the new Twin-Six. It's an eye-opener!

BURGESS BATTERY COMPANY
Freeport, Illinois Dept. 524

I WANT TO KNOW what's happened inside. Please send, without charge, the new Burgess Twin-Six Telephone Battery, cut away to show the "Sealed-in-Pliofilm" construction . . . and full information.

COMPANY

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ATTENTION POSITION

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Subscriber Satisfaction Means Profits

Get Rid of Noise!

with the

New Improved RTC-2 VINCENT

RARE GAS RELAY

- Installed in a Minute
- No Moving Parts
- Thousands in Service
- Fully Guaranteed

Eliminates unbalance noises in metallic party lines employing divided ringing to ground. Works with either harmonic or code ringing.

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Write for Catalog 39-A describing

Non-Grounding
Rare Gas Arresters
Terminal Strips
Potheads *Housings*

L. S. BRACH Mfg. Corp.

55-63 Dickerson St. Newark, N. J.

Signal Circuit Engineers Since 1906

A simple twist of the wrist and they're on . . .

Specify CHANCE CABLE RINGS

- Easy to install
- Easy to stock
- Easy to handle
- No-Tangle packed
- No jumping or slipping
- Minimized sheath cutting

A·B·CHANCE CO·

CENTRALIA MISSOURI

Long wire spans may be pulled exactly to a specified tension which must be corrected to temperature. This small strain dynamometer will take much of the guesswork out of wire stringing and prove highly desirable.

Paying out wire from a flat coil should never be attempted as this method places a torsional twist in the line from each complete loop taken off the coil. Revolving pay-out reels should be used on all wire stringing jobs. Sharp kinks in the wire should all be cut out and spliced to avoid trouble later.

While much more could be said about this type of construction, we have attempted to cover only the more important points. Neither do we expect all of our readers to agree completely with this method of construction. It must be recognized that strains are greater on long span construction and that vibration is a more serious problem than with shorter span lengths.

It is believed, however, that if certain precautions are observed during construction, long span construction for rural lines will prove highly successful in any section of the country.

▼ ▼

Commends Company for Quick Installation

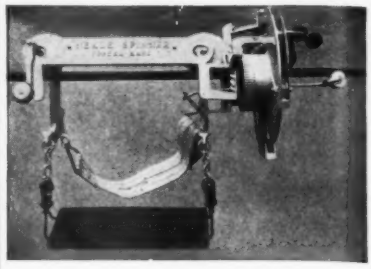
Writing to the "Voice of the People" column in the *Chicago Daily Tribune*, J. A. Cummings, a subscriber of the Illinois Bell Telephone Co., recently commended the company for its quick and courteous service in installing a telephone under emergency conditions:

"At 6 o'clock Saturday evening our 9 year old son was struck by an automobile and rushed to the hospital. After doing everything humanly possible to insure our child's recovery my wife and I returned home. We had no telephone in our apartment.

"From a pay station in a corner drug store I poured my woes in the ear of the traffic manager of the telephone company. This was about 10:10 o'clock. I explained my son's critical condition and asked if something could be done to have telephone service that night At 11:20 o'clock a telephone company representative appeared at our door and apologized for not being able to arrive sooner. Twenty minutes later a telephone was installed and in working order.

"At 10 o'clock Sunday morning our telephone rang and a voice said: 'This is the telephone company; how is your son this morning?'

"We were thrilled to say he was then out of danger—but thrilled even more to realize that a large corporation has a heart."



GO MODERN–

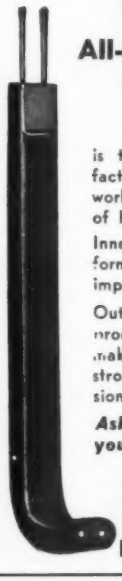
Discard obsolete methods—Take advantage of the new and accepted way of hanging cable—Use the NEALE one man Cable Spinning Machine and thereby avoid ring cuts, bowing and crystallization — It's economical and neat—Get complete information by writing a card or letter today to

NEALE MFG. CO.

Crane & Topeka • Topeka, Kans.

ENGINEERS AGREE

that the modern — the efficient — the economical method of running rural and small town lines is to plow them into the ground. And they also agree that



Twinply

All-Rubber Covered Underground

WIRE

is the most all-around satisfactory cable to use for this work. Dual rubber insulation of No. 17 copper conductors.

Inner soft insulation is special formula, cushion type rubber; impervious to soil acids.

Outer hard jacket is a new process of vulcanizing that makes the rubber tough and strong; resistant to all abrasions and pressures.

Ask us about the savings you will get with TWINPLY

SUTTLE EQUIPMENT CO.

Lawrenceville, Ill.

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Best Story of the Week —What's Yours?

Unable to understand the commotion over the line from a filling station, the operator in the office of the Council Grove, Kans., Telephone Co., dispatched Police Chief Charley Breeze on the run. Instead of the anticipated hold-up he found a dog, which had been locked in the station and was raising ned about it. Among other things he had knocked down the telephone, signaling the operator.

Says Rural Telephone Service Lags in Illinois

Telephone service has not kept pace with progress in rural electrification in Illinois, G. W. Baxter, director of transportation for the Illinois Agricultural Association, declared recently.

With the extension of rural electrification, he said, many Illinois telephone systems of the single-wire type have met with serious line interference requiring in some cases rebuilding of the line to make the circuits metallic.

Mr. Baxter said there are approximately 216 operating mutual telephone companies in the state and approximately 1,900 service lines. Many of these have grounded circuits. Lack of cooperation and management has retarded the modernization of these lines in a good many instances.

The telephone is as essential to the farmer in his everyday work as is rural electrification, he asserted, and it is important that he receive good service.

According to the best figures available, approximately 60 per cent of Illinois farms have telephones, while in some states the percentage runs as low as 6 per cent in rural communities, Mr. Baxter said.

"Monkey Business" Keeps Linemen Busy

There's always something to keep the life of a telephone repairman from becoming dull. In the Malay peninsula, it's monkeys.

William Stubbs, a telephone engineer from Malaya, in the United States recently, says that in constructing telephone lines through the jungle it was not realized at first how delighted the monkeys would be with these additions to their aerial highways.

The monkeys, it appears, regard the lines as natural trapezes. So rather frequent repairs have to be made of wires broken by the weight of swinging simians.

— and it will continue to test OK as long as you use HUBBARD HARDWARE
HUBBARD
HUBBARD AND COMPANY
PITTSBURGH . . . OAKLAND CALIFORNIA . . . CHICAGO
MANUFACTURERS OF A COMPLETE LINE OF HARDWARE
FOR TELEPHONE REQUIREMENTS SINCE 1900

Commissions and Courts

Merger of Telegraph Companies Urged by Fly

Testifying before the senate committee investigating the telegraph industry, James L. Fly, chairman of the Federal Communications Commission, urged that Congress authorize the merger of the Western Union and Postal telegraph systems. Mr. Fly declared that the next prolonged or pronounced business depression might "drive both companies to the wall" and bring not only financial bankruptcy but a discontinuance of service.

"Competition and other factors have driven the two major telegraph carriers to the point where their very existence is in jeopardy. National defense, the interests of employes, and other considerations make it undesirable that we should permit either to be forced to the wall.

"The most promising alternative is a merger, with suitable legislative safeguards."

▼ ▼

Toll Connection Controversy Becomes More Complex

C. M. Eggers, president of the Oklahoma Rural Telephone Co., of Enid, on May 10 filed a complaint with the Oklahoma Corporation Commission alleging that the Southwestern Bell Telephone Co., has refused to make long distance connections with exchanges of the rural company at Drummond and Barr, Okla. Mr. Eggers asks that the Bell company be required to make such toll connections.

The Oklahoma Rural Telephone Co., the complaint states, is a cooperative concern serving 1,200 subscribers, mostly farmers, on a non-profit basis. This company recently established a telephone exchange in Drummond in competition with The Drummond Telephone Co.

* * *

Issues in the controversy between the Oklahoma Rural Telephone Co. of Enid, Okla., and the Drummond (Okla.) Telephone Co., became more complicated May 10, when H. H. Harris, owner of the Drummond company, filed a cross-petition to an application of the Oklahoma Rural, which had asked the state corporation commission to order the Southwestern Bell Telephone Co., to give it toll connections.

The Southwestern Bell Telephone Co. also filed an answer to the Oklahoma Rural company petition expressing the belief that Mr. Harris' cross petition is substantially correct. Mr. Harris alleges that the Oklahoma Rural Telephone Co., although organized as a farmers' cooperative or mutual company, has exceeded its authority and has begun soliciting and accepting business for hire and thus has come under the jurisdiction of the corporation commission.

The Oklahoma Rural Telephone Co., Mr. Harris alleges, recently invaded his territory by putting in a telephone exchange in Drummond in competition with his (Mr. Harris') exchange and has also cut off four rural lines from the Harris exchange at Drummond. He also claims that the rural company is soliciting business subscribers in Drummond.

The corporation commission is asked to require the Oklahoma Rural to reestablish connections of the four rural lines with the Harris exchange at Drummond; to reinstate to the Harris exchange free service through Barr, Okla.; to sever all toll connections of the Oklahoma Rural at Drummond with Barr and Lahoma; to enjoin building by the Oklahoma Rural of a line from Drummond to Lahoma, and to deny the application of that company for connection with the toll lines of the Southwestern Bell Telephone Co.

Mr. Harris alleges that he has a toll service contract with the Bell at Drummond and gives adequate long distance connections and service out of that town. The corporation commission up to May 17 had not yet assumed jurisdiction over the controversy.

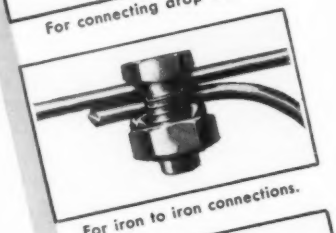
▼ ▼

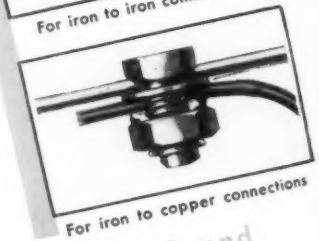
West Virginia Company to Change Hands

The Central Electric & Telephone Co. has been granted conditional authority by the West Virginia Public Service Commission to purchase the Jefferson County Telephone Co., which operates in Charles Town, Harpers Ferry, and Shepherdstown, and has toll and farm lines in Jefferson county, W. Va.

Blackburn
TELEPHONE CONNECTORS
for
ALL TYPES OF CONNECTIONS

For connecting drop wire.


For iron to iron connections.


For iron to copper connections

EXTRA STRONG and DOUBLE PLATED

Made of a high strength alloy, Blackburn connectors are stronger and can be used over and over again without twisting or distorting. They are DOUBLE PLATED, first with zinc, then with cadmium to withstand all types of atmospheres.

For dependable trouble-free connections, specify
BLACKBURN

Return this coupon for
FREE SAMPLES
of
BLACKBURN TELEPHONE CONNECTORS
Size and kinds of wires to be connected

Your Name
Company State
City

Jasper Blackburn Products Corp.
40 Clinton Street . . . . . Saint Louis, Mo.

NEWS FLASH!

The National Association of Railroad and Utilities Commissioners has been invited by the Federal Communications Commission to name five state commissioners to participate in the forthcoming investigation by the FCC of Bell System long distance rates, according to a commission announcement.

The FCC has designated Commissioners Paul A. Walker and Ray C. Wakefield to conduct the investigation.

The commission's order stipulated that the transfer must be consummated before July 1, 1941, or the "authority granted shall become null and void."

It was further set forth that the commission "does not pass upon or approve the terms and consideration" of the sale.

The order made it incumbent upon the purchaser to make an accounting of the property acquired in keeping with the commission's uniform system of accounts required of telephone companies.

The applicant proposed to buy all of the property and securities of the West Virginia concern with the exception of $300 par value six per cent cumulative preferred stock which, the order said, Central Electric & Telephone planned to redeem.

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Will Investigate Rates of Jamestown Company

The New York Public Service Commission has announced an investigation of the rates of the Jamestown Telephone Corp. The first hearing in the proceeding will take place at Syracuse May 23.

In ordering the investigation the commission stated:

"This commission having determined that an investigation should be instituted to determine if the rates, charges, tolls or rentals or the rules, regulations or practices affecting such rates are unjust, unreasonable, unjustly discriminatory or unduly preferential or in any wise in violation of any provision of the law, and if so to fix and establish just, reasonable and proper rates, charges, tolls or rentals and just, reasonable and proper rules, regulations or practices affecting such rates, charges, tolls, rentals or service, it is ordered that an investigation into the above matter be instituted."

Summary of Commission Hearings and Rulings

Federal Communications Commission

May 1: Granted authority to American Telephone & Telegraph Co. to supplement existing facilities between Rhinelander and Stevens Point, Wis., at an estimated cost of $67,000.

May 5: Informal applications filed by Lorain County Radio Corp., seeking authority to broadcast weather reports on the Great Lakes through stations WMI, Lorain, Ohio; WAS, Duluth, Minn.; and WAD, Port Washington, Wis.

May 5: Informal application filed by Thorne Donnelley, doing business as Donnelley Radio Telephone Co., for authority to broadcast weather reports on the Great Lakes through station WAY, Lake Bluff, Ill.

May 6: American Telephone & Telegraph Co. and Southern Bell Telephone & Telegraph Co. granted authority to supplement existing facilities between Charlotte, N. C. and Atlanta, Ga., at an estimated cost of $1,675,000.

May 8: Mountain States Telephone & Telegraph Co. granted authority to supplement existing facilities between Cheyenne, Wyo. and Denver, Colo.

May 8: Granted permission to American Telephone & Telegraph Co. to supplement existing facilities between Pittsburgh and New Castle, Pa.

May 8: Interstate Telegraph Co. granted authority to connect its Laws, Calif., exchange with Benton Station and Jeffery Branch, Calif.

May 8: Authority granted New England Telephone & Telegraph Co. to supplement existing facilities between Wickford and Narragansett, R. I.

May 8: New Jersey Bell Telephone Co. granted authority to supplement existing facilities between Woodbury and Woodstown, N. J.

May 14: Granted authority to Southern California Telephone Co. to discontinue Heber exchange and to make El Centro exchange service and toll station available to subscribers in the Heber exchange area.

May 14: Application filed by Hilda V. Marx and Melvin W. Hawes, seeking authority to sell and purchase, respectively, a portion of telephone property known as Bear Creek and Millville Telephone Lines.

Illinois Commerce Commission

April 30: Continued until June 17 the hearings on petition of city of Berwyn for a reduction in telephone toll rates between Berwyn and certain Chicago exchanges.

May 20: Hearing at Springfield in the matter of the petition by H. E. Skinner, Ella Roach, et al, for an order on the Illinois Commercial Telephone Co. to reinstate and restore service on certain lines south from Carterville, temporarily discontinued March 28, 1940.

May 20: Hearing at Springfield in the matter of citation by the commission of the Illinois Commercial Telephone Co. to show cause why there should not be a reduction in rates for telephone service by the company. Consolidated with the applications of the company for advances in rates at its Bement, Carlock, DeLand, Lawrence-

MAKE LINE TESTS *Quickly*

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ville, Monticello, Piper City and Roanoke exchanges.

May 20: Hearing on the petition of Millstadt Telephone Co. for an advance in telephone rates in Millstadt, St. Clair county.

May 20: Hearing at Springfield in the matter of application by Milford Telephone Exchange Co. for an order authorizing the issue of $45,000 of its 20-year 4 per cent first mortgage bonds.

May 21: Hearing at Springfield in the matter of proposed advance in rates for telephone service by the Southwestern Bell Telephone Co. in Belleville, East St. Louis, Edgemont, Freeburg, Granite City and New Athens. Protests and objections filed by International Hod Carriers Local Union No. 459, citizens of Freeburg and vicinity, and retail merchants association of Belleville.

Kansas State Corporation Commission

May 8: Granted authority to McKrae Telephone Co. to file revised rates for service at Neosho Falls.

May 9: East Kansas Telephone Co. granted authority to file a revised schedule of rates for all its exchanges.

Nebraska State Railway Commission

May 15: Authority given the Lincoln Telephone & Telegraph Co. to amend rules governing service at its Elmwood and Murdock exchanges, to permit subscribers on either exchange free service from the other.

New York Public Service Commission

May 19: Hearing at New York in the proceeding by the commission as to rates, etc., of the New York Telephone Co. in respect to cable-carrying charges.

May 19: Hearing in the proceeding by the commission as to certain changes in the tariffs of New York Telephone Co.

May 23: Hearing at New York in the proceeding by the commission as to certain changes in rates, etc., of the New York Telephone Co.

May 23: Hearing at Syracuse in the investigation by the commission as to rates, etc., of the Jamestown Telephone Corp.

Ohio Public Utilities Commission

May 12: Application filed by Ohio Standard Telephone Co., seeking authority to increase rates at Hanoverton, Homeworth and North Georgetown, as follows:

Hanoverton: Business independent, raised from $2.25 to $3.50; business two-party, $2.00 to be discontinued; business rural, $1.75 to $2.50. Residence independent, $2.00 to $2.25; residence two-party, $2.00 to be discontinued; residence rural, $1.50 to $1.75.

Homeworth and North Georgetown: Business independent, $2.00 to $3.50; business two-party, $1.75 to be discontinued; business rural, $1.50 to $2.50. Residence independent, $2.00 to $3.50; residence four-party, $1.75 (new); residence rural, $1.50 to $1.75.

May 13: Protest to application of the Chillicothe Telephone Co. to increase rates at Chillicothe filed by C. E. Hildebrand of Chillicothe. He questions certain representations made by the company in seeking to increase its rates.

May 13: Because the company has no means or credit to finance the rehabilitation of the property, commission has stricken the name of the Ruggles Telephone Co. from the list of operating utilities in the state.

COMING CONVENTIONS

The Illinois Telephone Association, Hotel Pere Marquette, Peoria, May 28 and 29.

Wisconsin State Telephone Association, Loraine Hotel, Madison, June 4 and 5.

North Dakota Telephone Association, Masonic Temple, Minot, June 11 and 12.

Washington Independent Telephone Association, Cascadian Hotel, Wenatchee, June 13 and 14.

Oregon Independent Telephone Association, Portland Hotel, Portland, June 16.

California Independent Telephone Association, Miramar Hotel, Santa Monica, June 19 and 20.

Michigan Independent Telephone Association, Hotel Olds, Lansing, July 23 and 24.

Association of American Railroads, Telephone Section, Hotel Gibson, Cincinnati, Ohio, September 23, 24 and 25.

South Dakota Telephone Association, Hotel Carpenter, Sioux Falls, October 8 and 9.

United States Independent Telephone Association, Hotel Stevens, Chicago, October 14, 15, 16 and 17.

Independent Pioneer Telephone Association, Hotel Stevens, Chicago, October 16.

May 13: Gave authority to the Ohio Bell Telephone Co. to extend the boundaries of its Canal Winchester exchange to include a portion of the Groveport exchange.

May 13: Under an agreement with substantially all of the subscribers, authorized the Citizens Telephone Co. of Waterville to establishing the following tariff for the new automatic 24-hour service which the company is establishing in Waterville:

Business independent line, $4.75; business two-party, $4.25; business rural, $3.75; discount, 25 cents. Residence independent line, $3.00; residence five-party, $2.25; residence rural, $2.25; discount 25 cents.

May 13: Ohio Bell Telephone Co. and Portsmouth Home Telephone Co. have been authorized to revise the boundaries of their Ironton and Portsmouth exchanges to add parts of territory which has been served by the Haverhill Telephone Co., which ceased operations August 3, 1940.

May 13: Authorized Ohio Bell Telephone Co. to transfer a small undeveloped territory from its Xenia to its Cedarville exchange; also authorized a revision of the base rate area at the North Hampton exchange. Authority has also been given to the company to change the boundaries of its Brooksville and Hartsville exchanges where the demand has developed for base rate area service.

May 16: Granted, subject to certain conditions and restrictions, the authority sought by Warren Telephone Co. to put through a refinancing program. The program involves the issuance of new bonds and notes.

May 10: Cross petition filed by Drummond Telephone Co. to the application of Oklahoma Rural Telephone Co., of Enid, which asked commission to require Southwestern Bell Telephone Co. to give toll connections to rural company. The Drummond company contends the Oklahoma Rural company has invaded the former's territory.

Virginia State Corporation Commission

May 10: Authorized Chesapeake & Potomac Telephone Co. of Virginia to issue to the American Telephone & Telegraph Co., $6,000,000 of common stock to retire an equal amount of indebtedness of the company to the A. T. & T.

West Virginia Public Service Commission

May 1: Central Electric & Telephone Co. granted conditional authority to purchase the Jefferson County Telephone Co. The latter company operates in Charles Town, Harpers Ferry and Shepherdstown, and has toll and farm lines in Jefferson county.

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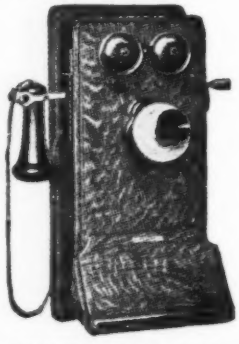

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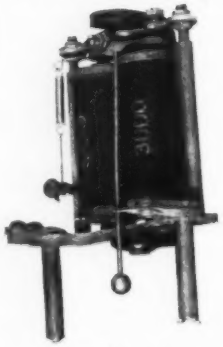

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